

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Andrew Wessman Examiner #: 78959 Date: 3/22/02
 Art Unit: 1742 Phone Number 305-3163 Serial Number: 09/769,128
 Mail Box and Bldg/Room Location: 7D19 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need:

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Dry-in-place zinc phosphating compositions see bible sheet

Inventors (please provide full names): Cavler, Bradenau, Miller, Preceatt see attached bible sheet

Earliest Priority Filing Date: 1/22/2000

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Zinc and phosphating
 orthophosphoric acid
 galvanized, galvanizing, galvanize
 some adhesion promoting substance
 film forming organic
 amine phenolic polymers
 inorganic oxides.

Claims are attached

BEST AVAILABLE COPY

STAFF USE ONLY

Searcher: K. Fuller

Searcher Phone #:

Searcher Location:

Date Searcher Picked Up:

Date Completed: 3/27/02

Searcher Prep & Review Time: 30

Clerical Prep Time:

Online Time: 55

Type of Search

NA Sequence (#)

AA Sequence (#)

Structure (#)

Bibliographic

Litigation

Fulltext

Patent Family

Other

Vendors and cost where applicable

STN

Dialog

Questel/Orbit

Dr. Link

Lexis/Nexis

Sequence Systems

WWW/Internet

Other (specify)

=> FILE HCAPLUS
FILE 'HCAPLUS' ENTERED AT 17:01:53 ON 26 MAR 2002
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FILE COVERS 1907 - 26 Mar 2002 VOL 136 ISS 13
FILE LAST UPDATED: 25 Mar 2002 (20020325/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.

The P indicator for Preparations was not generated for all of the CAS Registry Numbers that were added to the CAS files between 12/27/01 and 1/23/02. As of 1/23/02, the situation has been resolved. Searches and/or SDIs in the H/Z/CA/CAplus files incorporating CAS Registry Numbers with the P indicator executed between 12/27/01 and 1/23/02 may be incomplete. See the NEWS message on this topic for more information.

=> D QUE L53

L2	13 SEA FILE=REGISTRY ABB=ON (10381-36-9/BI OR 1314-23-4/BI OR 1344-28-1/BI OR 1344-43-0/BI OR 13463-67-7/BI OR 13598-37-3/BI OR 31257-96-2/BI OR 7631-86-9/BI OR 7779-90-0/BI OR 79-10-7/BI OR 79-41-4/BI OR 9003-01-4/BI OR 9081-54-3/BI)
L4	2 SEA FILE=REGISTRY ABB=ON L2 AND 1/ZN
L6	135 SEA FILE=REGISTRY ABB=ON (ZN(L)P(L)O(L)H)/ELS(L)4/ELC.SUB
L7	2839 SEA FILE=HCAPLUS ABB=ON L4
L8	3679 SEA FILE=HCAPLUS ABB=ON L6
L9	315 SEA FILE=HCAPLUS ABB=ON (L7 OR L8) AND GALVAN?
L10	127 SEA FILE=HCAPLUS ABB=ON L9 AND (AQ OR H2O OR WATER? OR AQUEOUS?)
L11	1 SEA FILE=HCAPLUS ABB=ON L10 AND ADHES?(5A)PROMOT?
L12	48 SEA FILE=HCAPLUS ABB=ON L10 AND ADHES?
L13	1 SEA FILE=HCAPLUS ABB=ON L10 AND INORGAN?(5A)OXIDE#
L14	11 SEA FILE=HCAPLUS ABB=ON L10 AND ?PHENOL?
L15	15 SEA FILE=HCAPLUS ABB=ON L12 AND MOA/RL
L16	21 SEA FILE=HCAPLUS ABB=ON L11 OR (L13 OR L14 OR L15)
L17	1 SEA FILE=REGISTRY ABB=ON ZIRCONIA/CN
L18	65957 SEA FILE=HCAPLUS ABB=ON L17
L19	1 SEA FILE=REGISTRY ABB=ON TITANIA/CN
L20	99104 SEA FILE=HCAPLUS ABB=ON L19
L21	1 SEA FILE=REGISTRY ABB=ON ALUMINA/CN
L22	177110 SEA FILE=HCAPLUS ABB=ON L21
L23	1 SEA FILE=REGISTRY ABB=ON SILICA/CN

L24 233026 SEA FILE=HCAPLUS ABB=ON L23
 L25 26 SEA FILE=HCAPLUS ABB=ON L10 AND ((L24 OR SILICA/BI) OR (L22 OR ALUMINA/BI) OR (L20 OR TITANIA/BI) OR (L18 OR ZIRCONIA/BI) OR (ALUMINUM OR ALUMINIUM OR SILICON OR TITANIUM OR ZIRCONIUM) (W)OXIDE)
 L26 12 SEA FILE=HCAPLUS ABB=ON L10 AND (SIO2 OR AL2O3 OR TIO2 OR ZRO2)
 L27 29 SEA FILE=HCAPLUS ABB=ON L25 OR L26
 L28 40 SEA FILE=HCAPLUS ABB=ON L16 OR L27
 L29 31 SEA FILE=HCAPLUS ABB=ON L28 AND METAL#/SC, SX
 L30 14674 SEA FILE=HCAPLUS ABB=ON (ZN OR ZINC) (3A)?PHOSPHAT?
 L31 796 SEA FILE=HCAPLUS ABB=ON L30 AND ?GALVAN?
 L32 333 SEA FILE=HCAPLUS ABB=ON L31 AND (AQ OR H2O OR WATER? OR AQUEOUS?)
 L34 29 SEA FILE=HCAPLUS ABB=ON L32 AND (SIO2 OR AL2O3 OR TIO2 OR ZRO2)
 L35 1 SEA FILE=REGISTRY ABB=ON ZIRCONIA/CN
 L36 65957 SEA FILE=HCAPLUS ABB=ON L35
 L37 1 SEA FILE=REGISTRY ABB=ON TITANIA/CN
 L38 99104 SEA FILE=HCAPLUS ABB=ON L37
 L39 1 SEA FILE=REGISTRY ABB=ON ALUMINA/CN
 L40 177110 SEA FILE=HCAPLUS ABB=ON L39
 L41 1 SEA FILE=REGISTRY ABB=ON SILICA/CN
 L42 233026 SEA FILE=HCAPLUS ABB=ON L41
 L43 42 SEA FILE=HCAPLUS ABB=ON L32 AND ((L42 OR SILICA/BI) OR (L40 OR ALUMINA/BI) OR (L38 OR TITANIA/BI) OR (L36 OR ZIRCONIA/BI) OR (ALUMINUM OR ALUMINIUM OR SILICON OR TITANIUM OR ZIRCONIUM) (W)OXIDE)
 L46 68 SEA FILE=HCAPLUS ABB=ON L32 AND MOA/RL
 L47 23 SEA FILE=HCAPLUS ABB=ON (L43 OR L34 OR L43) AND L46
 L48 2 SEA FILE=HCAPLUS ABB=ON (L43 OR L34 OR L43) AND ?PHOSPHAT? (3A)
 COMPOSITION?
 L50 21 SEA FILE=HCAPLUS ABB=ON (L43 OR L34 OR L43) AND ?PHOSPHAT?
 AND COMPOSITION?
 L51 34 SEA FILE=HCAPLUS ABB=ON L47 OR L48 OR L50
L53 50 SEA FILE=HCAPLUS ABB=ON L51 OR L29

=> FILE METADEX

FILE 'METADEX' ENTERED AT 17:02:09 ON 26 MAR 2002
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FILE LAST UPDATED: 13 MAR 2002 <20020313/UP>
 FILE COVERS 1966 TO DATE.

=> D QUE L33

L30 14674 SEA FILE=HCAPLUS ABB=ON (ZN OR ZINC) (3A)?PHOSPHAT?
 L31 796 SEA FILE=HCAPLUS ABB=ON L30 AND ?GALVAN?
 L32 333 SEA FILE=HCAPLUS ABB=ON L31 AND (AQ OR H2O OR WATER? OR AQUEOUS?)
 L33 4 SEA FILE=HCAPLUS ABB=ON L32 AND ADHES?(3A)PROMOT?

=> D QUE L62

L54 391 SEA FILE=METADEX ABB=ON (ZN OR ZINC) AND PHOSPHAT? AND GALVAN?
 L55 100 SEA FILE=METADEX ABB=ON L54 AND (AQ OR AQUEOUS OR WATER? OR H2O)
 L56 197 SEA FILE=METADEX ABB=ON (ZN OR ZINC) (3A)PHOSPHAT? AND GALVAN?

L57 48 SEA FILE=METADEX ABB=ON L55 AND L56
L58 13 SEA FILE=METADEX ABB=ON L57 AND BATH#
L59 1 SEA FILE=METADEX ABB=ON L57 AND (STICK? OR BINDER? OR ADHER?)

L60 4000 SEA FILE=METADEX ABB=ON GALVANIZED STEELS+NT/CT
L61 30 SEA FILE=METADEX ABB=ON L57 AND L60
L62 37 SEA FILE=METADEX ABB=ON L58 OR L59 OR L61

=> FILE COMPENDEX

FILE 'COMPENDEX' ENTERED AT 17:02:31 ON 26 MAR 2002
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FILE LAST UPDATED: 25 MAR 2002 <20020325/UP>
FILE COVERS 1970 TO DATE.

=> D QUE L64

L54 391 SEA FILE=METADEX ABB=ON (ZN OR ZINC) AND PHOSPHAT? AND
GALVAN?
L55 100 SEA FILE=METADEX ABB=ON L54 AND (AQ OR AQUEOUS OR WATER? OR
H2O)
L56 197 SEA FILE=METADEX ABB=ON (ZN OR ZINC) (3A) PHOSPHAT? AND GALVAN?

L63 19 SEA FILE=COMPENDEX ABB=ON L55 AND L56
L64 -3 SEA FILE=COMPENDEX ABB=ON L63 AND PHOSPHATING

=> DUP REM L53 L62 L64

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PROCESSING COMPLETED FOR L53
PROCESSING COMPLETED FOR L62
PROCESSING COMPLETED FOR L64
L65 89 DUP REM L53 L62 L64 (1 DUPLICATE REMOVED)

=> D L65 ALL 1-89 HITSTR

L65 ANSWER 1 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2002:129247 HCAPLUS
DN 136:185443
TI Pigments and corrosion-resistant coating compositions using them
IN Nomaguchi, Toshiyuki; Nakayama, Hiroshi; Ando, Atsushi; Miyoshi, Yasushi
PA Mitsui Kinzoku Paints and Chemicals Co., Ltd., Japan; Nissin Steel Co.,
Ltd.
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C09C001-62
ICS C09C001-02; C09C001-04; C09C001-40; C09C001-64; C09D005-00;
C09D005-08; C09D005-10; C09D007-12; C09D201-00; C23F015-00

CC	42-6 (Coatings, Inks, and Related Products)	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002053769 A2			20020219	JP 2001-105147	20010403
PRAI	JP 2000-159009			20000529		
AB	<p>Title pigments comprise Zn powders and water-sol. Al pigments. The coating compns. consist of the pigments, water-thinned coating solns., and optionally extender pigments and/or rust-preventive pigments. The water-thinned coating solns. may contain binders of colloidal SiO₂ composite emulsions. Thus, a comprn. contg. QAS 25 (colloidal SiO₂), Mowinyl 8010 (colloidal SiO₂ composite emulsion), LS 2 (Zn powders), K-White 140W (Al phosphate-based compd.), and AW 520B (Al paste) was applied on a galvanized steel showing high corrosion resistance in cyclic corrosion test (JASO M 609-91).</p>					
ST	<p>aluminum zinc pigment corrosion resistance coating; rust prevention coating aluminum zinc pigment; galvanized steel corrosion resistance coating aluminum zinc; zinc alloy plated steel anticorrosive coating aluminum pigment</p>					
IT	<p>Polysiloxanes, uses RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (acrylic, binders, Kanevinyl KD 11; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of galvanized steel)</p>					
IT	<p>Pigments, nonbiological (aluminum- and zinc-contg. pigments for corrosion-resistant coatings of galvanized steel)</p>					
IT	<p>Coating materials (anticorrosive, water-thinned; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of galvanized steel)</p>					
IT	<p>Polyurethanes, uses RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (binders; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of galvanized steel)</p>					
IT	<p>Binders (colloidal silica-based; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of galvanized steel)</p>					
IT	<p>Mica-group minerals, uses RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (extender pigments; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of galvanized steel)</p>					
IT	<p>Galvanized steel RL: MSC (Miscellaneous) (substrates; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of galvanized steel)</p>					
IT	<p>14807-96-6, Talc, uses RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (Micron A, extender pigments; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of galvanized steel)</p>					
IT	<p>7440-66-6, LS 2, uses RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (aluminum- and zinc-contg. pigments for corrosion-resistant coatings of galvanized steel)</p>					
IT	<p>128152-09-0, Mowinyl 8010 140229-11-4, Olester UD 500 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or</p>					

engineered material use); USES (Uses)
 (binders; aluminum- and zinc-contg. pigments for corrosion-resistant
 coatings of **galvanized steel**)

IT 197179-63-8, QAS 25
 RL: PRP (Properties); TEM (Technical or engineered material use); USES
 (Uses)
 (binders; aluminum- and zinc-contg. pigments for corrosion-resistant
 coatings of **galvanized steel**)

IT 7631-86-9, Silica, uses
 RL: PRP (Properties); TEM (Technical or engineered material use); USES
 (Uses)
 (colloidal, binders; aluminum- and zinc-contg. pigments for
 corrosion-resistant coatings of **galvanized steel**)

IT 471-34-1, Calcium carbonate, uses 1314-13-2, Zinc oxide, uses
 7727-43-7, Barium sulfate
 RL: MOA (Modifier or additive use); PRP (Properties); TEM
 (Technical or engineered material use); USES (Uses)
 (extender pigments; aluminum- and zinc-contg. pigments for
 corrosion-resistant coatings of **galvanized steel**)

IT 7429-90-5, Alpaste AW 520B, uses
 RL: MOA (Modifier or additive use); PRP (Properties); TEM
 (Technical or engineered material use); USES (Uses)
 (paste; aluminum- and zinc-contg. pigments for corrosion-resistant
 coatings of **galvanized steel**)

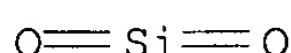
IT 7779-90-0, Zinc phosphate 7789-82-4, MC 400WR
 10103-46-5, LF Bosei CP-Z 122493-85-0, PM 303W 161756-48-5, K-White
 140W
 RL: MOA (Modifier or additive use); PRP (Properties); TEM
 (Technical or engineered material use); USES (Uses)
 (rust-preventive pigments; aluminum- and zinc-contg. pigments for
 corrosion-resistant coatings of **galvanized steel**)

IT 110125-44-5 208469-25-4 333365-43-8
 RL: MSC (Miscellaneous)
 (steel substrates plated with; aluminum- and zinc-contg. pigments for
 corrosion-resistant coatings of **galvanized steel**)

IT 12597-69-2, Steel, miscellaneous
 RL: MSC (Miscellaneous)
 (substrates, zinc alloy- or aluminum-plated; aluminum- and zinc-contg.
 pigments for corrosion-resistant coatings of **galvanized**
steel)

IT 7631-86-9, Silica, uses
 RL: PRP (Properties); TEM (Technical or engineered material use); USES
 (Uses)
 (colloidal, binders; aluminum- and zinc-contg. pigments for
 corrosion-resistant coatings of **galvanized steel**)

RN 7631-86-9 HCPLUS
 CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 2 OF 89 HCPLUS COPYRIGHT 2002 ACS
 AN 2001:798495 HCPLUS
 DN 135:347377
 TI Steel sheet with multilayer coating and manufacture thereof
 IN Yamaji, Takafumi; Morita, Kenji; Matsuzaki, Akira; Yamashita, Masaaki;
 Hamada, Etsuo
 PA NKK Corporation, Japan

SO PCT Int. Appl., 156 pp.
 CODEN: PIXXD2
 DT Patent
 LA Japanese
 IC ICM C23C022-28
 ICS C23C022-30; C23C022-33
 CC 55-6 (Ferrous Metals and Alloys)
 FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001081653	A1	20011101	WO 2000-JP3876	20000615
	W: AU, CA, KR, US			RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE	
	JP 2001303266	A2	20011031	JP 2000-120241	20000421
	JP 2001303264	A2	20011031	JP 2000-120242	20000421
	JP 2001303265	A2	20011031	JP 2000-120243	20000421
	JP 2001316842	A2	20011116	JP 2000-130328	20000428
	JP 2001316840	A2	20011116	JP 2000-130329	20000428
	JP 2001316837	A2	20011116	JP 2000-130330	20000428
	JP 2001316838	A2	20011116	JP 2000-130331	20000428
	JP 2001316844	A2	20011116	JP 2000-130332	20000428
	JP 2001316839	A2	20011116	JP 2000-130333	20000428
PRAI	JP 2000-120241	A	20000421		
	JP 2000-120242	A	20000421		
	JP 2000-120243	A	20000421		
	JP 2000-130328	A	20000428		
	JP 2000-130329	A	20000428		
	JP 2000-130330	A	20000428		
	JP 2000-130331	A	20000428		
	JP 2000-130332	A	20000428		
	JP 2000-130333	A	20000428		
AB	A surface treated steel plate comprising a steel plate, an Al-Zn alloy plated layer formed thereon, a conversion coating formed on the plated layer, and a layer having an enhanced concn. of a Cr compd. formed on the alloy plating layer side of the conversion coating. The concn. of Al in the plated layer is 25-75%. The conversion layer is obtained by coating a liq. compn. contg. an aq. resin and a chromic acid as the main components with a resin/Cr wt. ratio of 20-200 and a Cr surface d. of 3-50 mg/m ² .				
ST	steel multilayer coating aluminum zinc alloy conversion chromium				
IT	Acrylic polymers, uses				
	RL: TEM (Technical or engineered material use); USES (Uses)				
	(coating contg.; steel sheet with multilayer coating and manuf. thereof)				
IT	Coating process				
	(conversion; steel sheet with multilayer coating and manuf. thereof)				
IT	Coating materials				
	(multilayer; steel sheet with multilayer coating and manuf. thereof)				
IT	Galvanized steel				
	RL: TEM (Technical or engineered material use); USES (Uses)				
	(steel sheet with multilayer coating and manuf. thereof)				
IT	471-34-1, Calcium carbonate, uses 1344-95-2, Calcium silicate				
	7664-38-2, Phosphoric acid, uses 7789-06-2, Strontium chromate srcro4				
	10294-40-3, Barium chromate bacro4				
	RL: NUU (Other use, unclassified); USES (Uses)				
	(coating compn. contg.; steel sheet with multilayer coating and manuf. thereof)				
IT	100-42-5D, Styrene, polymers with acrylic monomers				
	RL: TEM (Technical or engineered material use); USES (Uses)				

(coating contg.; steel sheet with multilayer coating and manuf. thereof)

- IT 7779-90-0, Zinc phosphate 7784-30-7,
 Aluminum phosphate 13939-25-8, Aluminum Dihydrogen
triphosphate 14332-59-3, Zinc phosphite
 RL: TEM (Technical or engineered material use); USES (Uses)
 (conversion coating layer contg.; steel sheet with multilayer coating
 and manuf. thereof)
- IT 7440-47-3, Chromium, uses 7440-70-2, Calcium, uses 7631-86-9,
Silica, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (org. coating layer contg.; steel sheet with multilayer coating and
 manuf. thereof)
- IT 52308-11-9 64293-69-2 72373-27-4 93694-77-0 142240-64-0
 RL: TEM (Technical or engineered material use); USES (Uses)
 (plated layer; steel sheet with multilayer coating and manuf. thereof)
- IT 12597-69-2, Steel, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (steel sheet with multilayer coating and manuf. thereof)
- IT 1066-30-4, Chromium (III) acetate 7738-94-5, Chromic acid (H₂CrO₄)
 10025-73-7, Chromium (III) chloride 13548-38-4, Chromium (III) nitrate
 27115-36-2, Chromium (III) formate
 RL: NUU (Other use, unclassified); USES (Uses)
 (surface treatment soln. contg.; steel sheet with multilayer coating
 and manuf. thereof)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

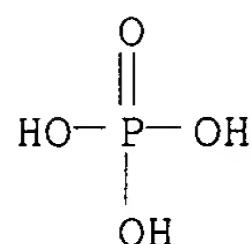
RE

- (1) Nisshin Steel Co Ltd; JP 60145383 A 1985 HCPLUS
- (2) Nisshin Steel Co Ltd; JP 09241858 A 1997 HCPLUS
- (3) Nkk Corporation; JP 11302814 A 1999 HCPLUS
- (4) Nkk Corporation; JP 11343559 A 1999 HCPLUS

- IT 7779-90-0, Zinc phosphate 14332-59-3
 , Zinc phosphite
 RL: TEM (Technical or engineered material use); USES (Uses)
 (conversion coating layer contg.; steel sheet with multilayer coating
 and manuf. thereof)

RN 7779-90-0 HCPLUS

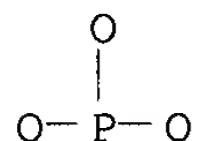
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

RN 14332-59-3 HCPLUS

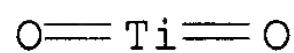
CN Phosphonic acid, zinc salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Zn

*** FRAGMENT DIAGRAM IS INCOMPLETE ***

IT 7631-86-9, Silica, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (org. coating layer contg.; steel sheet with multilayer coating and



L65 ANSWER 6 OF 89 HCAPLUS COPYRIGHT 2002 ACS
 AN 2001:651542 HCAPLUS
 DN 135:212415
 TI Water-based anticorrosive coating compositions and
 galvanized steel surface treated with them
 IN Kashiwada, Kiyoharu; Yamamoto, Kazuto; Shiiba, Satomi; Kato, Yoshitaka
 PA Kansai Paint Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C23C022-17
 ICS C09D005-00; C09D005-08; C09D123-04; C09D133-02; C23C022-12;
 C23C028-00
 CC 42-10 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 55
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001240978	A2	20010904	JP 2000-56966	20000302
AB	The compns. with freedom from toxic metals, comprise (A) .alpha.-olefin-.alpha..beta.-unsatd. carboxylic acid copolymer dispersions, 100 (as solids), (B) Pb-, Cr- and Cd-free anticorrosive pigments 5-80, and hydrazine derivs. 0.5-20 parts. Thus, coating a compn. contg. acrylic acid-ethylene copolymer dispersion 100 (as solids), ethylene glycol monobutyl ether/BuOH 50:50 mixt. (A) 15, a Ca-modified Al dihydrogen tripolyphosphate 15 (as solids) and a 50% dispersion of 3-mercaptop-1,2,4-triazole in A 8 (as solids) parts on the surface of a galvanized steel sheet and drying at 80.degree. for 20 min gave a coat film with good salt spray resistance and persistent adhesion.				
ST	anticorrosive waterborne coating olefin unsatd carboxylic acid copolymer; lead free anticorrosive waterborne coating galvanized steel; chromium free anticorrosive waterborne coating galvanized steel; cadmium free anticorrosive waterborne coating galvanized steel; hydrazine additive pollution free waterborne coating galvanized steel; calcium modified aluminum acid tripolyphosphate anticorrosive waterborne coating; mercaptotriazole anticorrosive waterborne coating galvanized steel				

IT Coating materials
 (anticorrosive; water-based anticorrosive coating compns. and galvanized steel surface treated with them)

IT Corrosion inhibitors
 (pigments; water-based anticorrosive coating compns. and galvanized steel surface treated with them)

IT Galvanized steel
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (water-based anticorrosive coating compns. and galvanized steel surface treated with them)

IT 61-82-5, 3-Amino-1,2,4-triazole 3179-31-5, 3-Mercapto-1,2,4-triazole
 16691-43-3, 3-Mercapto-5-amino-1,2,4-triazole
 RL: MOA (Modifier or additive use); USES (Uses)
 (additive; water-based anticorrosive coating compns. and galvanized steel surface treated with them)

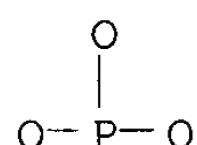
IT 9010-77-9, Acrylic acid-ethylene copolymer
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (coating binder; water-based anticorrosive coating compns. and galvanized steel surface treated with them)

IT 13092-66-5, Magnesium dihydrogen phosphate 14332-59-3D
 , Zinc phosphite, strontium compd.-modified 29196-72-3D, Aluminum tripolyphosphate, calcium or zinc modified
 60676-86-0D, Amorphous silica, Ca ion-exchanged
 RL: MOA (Modifier or additive use); USES (Uses)
 (pigments; water-based anticorrosive coating compns. and galvanized steel surface treated with them)

IT 14332-59-3D, Zinc phosphite, strontium compd.-modified
 RL: MOA (Modifier or additive use); USES (Uses)
 (pigments; water-based anticorrosive coating compns. and galvanized steel surface treated with them)

RN 14332-59-3 HCAPLUS

CN Phosphonic acid, zinc salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Zn

*** FRAGMENT DIAGRAM IS INCOMPLETE ***

L65 ANSWER 7 OF 89 HCAPLUS COPYRIGHT 2002 ACS
 AN 2001:517557 HCAPLUS
 DN 135:108689
 TI Environmentally friendly and corrosion-resistant precoated steel sheet and its manufacture
 IN Sasaki, Kenichi; Yoshida, Keiji; Matsuzaki, Akira; Yamashita, Masaaki
 PA Nkk Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 17 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B32B015-08
 ICS B05D007-14; B05D007-24
 CC 42-10 (Coatings, Inks, and Related Products)

Section cross-reference(s): 55

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001191447	A2	20010717	JP 2000-5409	20000114
AB	The precoated sheet comprises a galvanized steel sheet formed with a conversion coating contg. SiO₂ particles and a binder, an undercoating, and a top coating, where the undercoating contains a rust-preventing agent (a) a Ca component (calcd. as Ca) 1-30, (b) SiO₂ and/or silicate salt (calcd. as SiO₂) 1-35, and (c) H ₃ PO ₄ or its salt (calcd. as PO ₄) 1-30 parts, and optionally (d) molybdate salts, tungstate salts, phosphite salts, borates, and/or metaborates 1-50 parts and as total of (a), (b), (c), and (d) 5-100 parts vs. 100 parts solid resin components. The sheet is manufd. by coating a compn . contg. the above rust-preventing agent on the galvanized steel sheet formed with a conversion coating, baking at sheet temp. 180-260.degree., top coating, and then baking at sheet temp. 180-260.degree.. Thus, a hot-dip galvanized steel sheet was coated with an aq. soln. contg. colloidal SiO₂ , ammonium phosphate , and polyacrylic acid, dried, coated with a compn . contg. a polyester resin, CaCO ₃ , Na ₄ SiO ₄ , and Zn ₃ (PO ₄) ₂ , baked at 215.degree. for 60 s, top coated, and then baked at 230.degree. for 60 s to give a Cr-free product having high corrosion resistance at worked area.				
ST	precoated steel corrosion inhibitor calcium silicate phosphate environmental friendly				
IT	Corrosion inhibitors (Cr-free precoated steel sheet contg. calcium salt and silicate and phosphate for corrosion resistance)				
IT	Galvanized steel RL: TEM (Technical or engineered material use); USES (Uses) (Cr-free precoated steel sheet contg. calcium salt and silicate and phosphate for corrosion resistance)				
IT	Polyesters, uses RL: MOA (Modifier or additive use); USES (Uses) (aminoplast-, coatings; Cr-free precoated steel sheet contg. calcium salt and silicate and phosphate for corrosion resistance)				
IT	Coating materials (anticorrosive; Cr-free precoated steel sheet contg. calcium salt and silicate and phosphate for corrosion resistance)				
IT	Coating process (conversion; Cr-free precoated steel sheet contg. calcium salt and silicate and phosphate for corrosion resistance)				
IT	Polyesters, uses RL: MOA (Modifier or additive use); USES (Uses) (epoxy; Cr-free precoated steel sheet contg. calcium salt and silicate and phosphate for corrosion resistance)				
IT	Aminoplasts RL: MOA (Modifier or additive use); USES (Uses) (polyester-, coatings; Cr-free precoated steel sheet contg. calcium salt and silicate and phosphate for corrosion resistance)				
IT	Polyurethanes, uses RL: TEM (Technical or engineered material use); USES (Uses) (polyester-, coatings; Cr-free precoated steel sheet contg. calcium salt and silicate and phosphate for corrosion resistance)				
IT	Epoxy resins, uses RL: MOA (Modifier or additive use); USES (Uses) (polyester-; Cr-free precoated steel sheet contg. calcium salt and silicate and phosphate for corrosion resistance)				
IT	9003-01-4, Polyacrylic acid				

RL: TEM (Technical or engineered material use); USES (Uses)
 (binder, in conversion coating; Cr-free precoated steel sheet contg.
 calcium salt and silicate and **phosphate** for corrosion
 resistance)

IT 349128-82-1, Dimethyl isophthalate-dimethyl terephthalate-ethylene
 glycol-hexamethylene diisocyanate-neopentyl glycol copolymer
 RL: TEM (Technical or engineered material use); USES (Uses)
 (coating; Cr-free precoated steel sheet contg. calcium salt and
 silicate and **phosphate** for corrosion resistance)

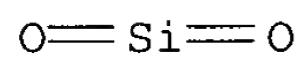
IT 7631-86-9, Colloidal **silica**, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (colloidal, conversion coating; Cr-free precoated steel sheet contg.
 calcium salt and silicate and **phosphate** for corrosion
 resistance)

IT 10124-31-9, Ammonium **orthophosphate**
 RL: TEM (Technical or engineered material use); USES (Uses)
 (conversion coating; Cr-free precoated steel sheet contg. calcium salt
 and silicate and **phosphate** for corrosion resistance)

IT 471-34-1, Calcium carbonate, uses 7779-90-0, Zinc
orthophosphate 7789-06-2, Strontium chromate 13472-30-5,
 Sodium silicate (Na₄SiO₄) 13701-59-2, Barium metaborate 23436-05-7,
 Barium borate 39322-06-0, Zinc tungstate 51810-70-9, Zinc phosphide
 61583-60-6, Zinc molybdate
 RL: MOA (**Modifier or additive use**); USES (Uses)
 (corrosion inhibitor; Cr-free precoated steel sheet contg. calcium salt
 and silicate and **phosphate** for corrosion resistance)

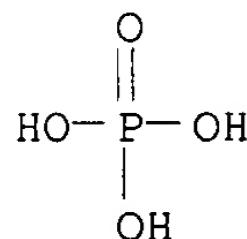
IT 7631-86-9, Colloidal **silica**, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (colloidal, conversion coating; Cr-free precoated steel sheet contg.
 calcium salt and silicate and **phosphate** for corrosion
 resistance)

RN 7631-86-9 HCAPLUS
 CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 7779-90-0, Zinc **orthophosphate**
 RL: MOA (**Modifier or additive use**); USES (Uses)
 (corrosion inhibitor; Cr-free precoated steel sheet contg. calcium salt
 and silicate and **phosphate** for corrosion resistance)

RN 7779-90-0 HCAPLUS
 CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 8 OF 89 HCAPLUS COPYRIGHT 2002 ACS
 AN 2001:479354 HCAPLUS

KATHLEEN FULLER EIC 1700/LAW LIBRARY 308-4290

DN 135:78287
 TI Environmentally friendly and scratch- and corrosion-resistant chromium-free precoated steel sheets and their manufacture
 IN Sasaki, Kenichi; Yoshida, Keiji; Kajita, Yasuyuki; Kato, Hiroyuki
 PA NKK Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 11 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B05D007-14
 ICS C23C022-00; C23C022-07; C23C022-40
 CC 42-8 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 55

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001179175	A2	20010703	JP 1999-372209	19991228
AB	<p>The steel sheets are manufd. by applying undercoats contg. 100-120 parts (based on 100 parts resin solids) anticorrosion additives consisting of 5-100 parts compds. capable of donating phosphate ion in the presence of H₂O and 5-100 parts compds. capable of donating vanadate ion in the presence of H₂O on galvanized steel sheets having chem. conversion coatings contg. SiO₂ fine particles and binders, baking the undercoats at 180-260.degree., applying top coats contg. 1-15% (based on resin solids) HOR(OCOR'CO₂R)nOH [n = 2-10; R = polyoxymethylene, 1,4-cyclohexylenedimethyl, neopentylene, (CH₂)_m; m = 1-10; R' = 2,6-naphthylene, 1,4-phenylene], 40-90% polyols except polyesters mentioned above, and 9-50% curing agents on the undercoats, and baking the coating films at 180-260.degree.. Thus, a galvanized steel sheet having a chem. conversion coating colloidal SiO₂ was coated with a polyester primer contg. Zn₃(PO₄)₂ and 3CaO.V₂O₅ and then with a compn. contg. di-Me naphthalene-2,6-dicarboxylate-diethylene glycol copolymer 5.0, a polyester polyol 87.5, and HDI isocyanurate 45.0 parts to give a precoated steel sheet showing good appearance and scratch and corrosion resistance.</p>				
ST	<p>scratch resistant polyester precoated steel sheet; anticorrosive coating phosphate vanadate steel sheet</p>				
IT	<p>Coating materials (anticorrosive; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)</p>				
IT	<p>Polyesters, uses RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses) (environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)</p>				
IT	<p>Galvanized steel RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses) (environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)</p>				
IT	<p>Polyethers, uses RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses) (polyester-; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)</p>				
IT	<p>Polyurethanes, uses</p>				

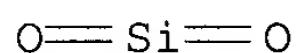
- IT RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyester-polyether-polyisocyanurate-; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)
- IT Polyisocyanurates
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyester-polyether-polyurethane-; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)
- IT Polyethers, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyester-polyisocyanurate-polyurethane-; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)
- IT Polyurethanes, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyester-polyisocyanate; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)
- IT Polyisocyanurates
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyester-polyurethane-; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)
- IT Polyesters, uses
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(polyether-; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)
- IT Polyesters, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-polyisocyanurate-polyurethane-; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)
- IT Polyesters, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyisocyanurate-polyurethane-; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)
- IT Coating materials
(scratch-resistant; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)
- IT 7631-86-9, Colloidal silica, uses
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(colloidal, chem. conversion coating; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)
- IT 3779-63-3, Hexamethylene diisocyanate isocyanurate
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(crosslinking agent; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)
- IT 28779-82-0P 30424-90-9P, 1,4-Butanediol-dimethyl naphthalene-2,6-dicarboxylate copolymer 149763-49-5P 220756-61-6P, Diethylene glycol-dimethyl naphthalene-2,6-dicarboxylate copolymer
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); RACT

(Reactant or reagent); USES (Uses)
 (environmentally friendly scratch- and corrosion-resistant
 chromium-free precoated steel sheets)

IT 7758-23-8 7779-90-0, Zinc phosphate
 12137-38-1, Diphosphorus tetraoxide 13550-42-0, Calcium vanadium oxide
 (Ca₃V₂O₈) 115493-58-8, Manganese vanadium oxide (Mn₄V₂O₉)
 RL: MOA (Modifier or additive use); USES (Uses)
 (environmentally friendly scratch- and corrosion-resistant
 chromium-free precoated steel sheets)

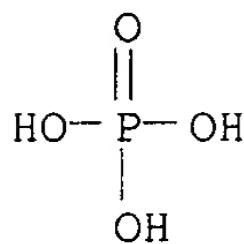
IT 7631-86-9, Colloidal silica, uses
 RL: PEP (Physical, engineering or chemical process); TEM (Technical or
 engineered material use); PROC (Process); USES (Uses)
 (colloidal, chem. conversion coating; environmentally friendly scratch-
 and corrosion-resistant chromium-free precoated steel sheets)

RN 7631-86-9 HCPLUS
 CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 7779-90-0, Zinc phosphate
 RL: MOA (Modifier or additive use); USES (Uses)
 (environmentally friendly scratch- and corrosion-resistant
 chromium-free precoated steel sheets)

RN 7779-90-0 HCPLUS
 CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 9 OF 89 HCPLUS COPYRIGHT 2002 ACS
 AN 2001:458777 HCPLUS
 DN 135:49249
 TI Solutions and process for phosphating of steel plates for overcoating
 peeling resistance
 IN Morikawa, Shigeyasu; Nakano, Tadashi; Taketsu, Hirofumi
 PA Nisshin Steel Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B05D007-14
 ICS B05D007-14; B05D007-24; C23C022-17
 CC 55-6 (Ferrous Metals and Alloys)
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	-----	-----	-----	-----
PI JP 2001170557	A2	20010626	JP 1999-362161	19991221
AB	The phosphate solns. contain 2.0-100 g/L (calcd. as P) phosphates of Mn,			

Mg, Mo, Zn, Ca, and/or Zr and contain oxycarboxylic acid compds. of 0.20-3.0 times the amt. of P. The soln. may also contain 0.002-2.0 times (based on the amt. of P) silane coupling agents which is partly bonded onto **silica** sol surfaces. The silane coupling agents are characterized by NMR peak intensity ratio of $^{29}\text{SiO}_3/^{29}\text{SiO}_4$ 0.16-1.85 ($^{29}\text{SiO}_3$ due to silane coupling agent and $^{29}\text{SiO}_4$ due to **silica** sol). Surface treatment of steel plates by application of 5-200 mg/m² (calcd. as P) of the soln. followed by drying at 80-250.degree., without **water** rinsing, is also claimed. Steel plates with finger print resistance, corrosion resistance, and excellent overcoating peeling resistance are obtained.

ST overcoating peeling resistance steel phosphating; steel plate phosphating oxycarboxylic acid additive; silane coupling agent additive steel phosphating

IT Carboxylic acids, processes
RL: **MOA (Modifier or additive use)**; PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling, corrosion, and finger printing)

IT Coating materials
(anticorrosive; addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling, corrosion, and finger printing)

IT **Galvanized steel**
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(**electrogalvanized**, surface treatment of; addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling, corrosion, and finger printing)

IT **Silica gel, processes**
RL: **MOA (Modifier or additive use)**; PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(phosphating in solns. also contg. silane coupling agents and; addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling, corrosion, and finger printing)

IT Coating process
(phosphating; addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling, corrosion, and finger printing)

IT Coupling agents
(silane; addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling, corrosion, and finger printing)

IT 77-92-9, Citric acid, processes 87-69-4, Tartaric acid, processes
141-82-2, Malonic acid, processes
RL: **MOA (Modifier or additive use)**; PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling, corrosion, and finger printing)

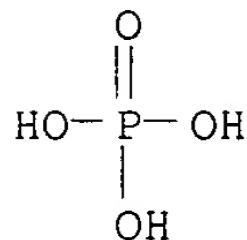
IT 7758-23-8, Calcium dihydrogenphosphate **7779-90-0**, Zinc phosphate 10043-83-1, Magnesium phosphate 10124-54-6, Manganese phosphate 13092-66-5, Magnesium dihydrogenphosphate 13772-29-7 18718-07-5 25013-42-7, Molybdenum phosphate
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling, corrosion, and finger printing)

IT 919-30-2, .gamma.-Aminopropyltriethoxysilane 2530-83-8, .gamma.-Glycidoxypipyltrimethoxysilane
RL: **MOA (Modifier or additive use)**; PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(phosphating in solns. also contg.; addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling,

corrosion, and finger printing)

IT 7779-90-0, **Zinc phosphate**
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (addn. of oxycarboxylic acids in phosphating of steel plates for
 resistance to overcoating peeling, corrosion, and finger printing)

RN 7779-90-0 HCAPLUS
 CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 10 OF 89 HCAPLUS COPYRIGHT 2002 ACS
 AN 2001:346933 HCAPLUS
 DN 134:341389
 TI Polymer film-steel sheet laminate showing good shape retention in press
 working
 IN Iwai, Masatoshi; Araga, Kuniyasu; Shigeru, Hiroo
 PA Kobe Steel, Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 12 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B32B015-08
 ICS C23C022-00
 CC 38-3 (Plastics Fabrication and Uses)
 Section cross-reference(s): 42, 55
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001129925	A2	20010515	JP 1999-311478	19991101
AB	The laminate has a .gtoreq.2 .mu.m-thick org. film top layer of (A) CO ₂ H-contg. modified olefin polymers in which 0.2-0.8 equiv of CO ₂ H is neutralized with alkali metals or (B) active H-contg. urethane polymers contg. normal-temp. crosslinkable epoxy resins 1.0-20, spherical polyethylene wax particles whose shape is retained in the film 0.5-20, and colloidal silica 1-30%. Alternatively, the laminate has (1) a primary layer in 0.2-3.0 g/m ² of Zn phosphate film contg. 1.0-10% Ni, Mn, and/or Mg on a steel sheet and (2) a secondary layer in thickness .gtoreq.0.1 .mu.m of the above A or B on the primary layer. Thus, a galvanized steel sheet was sprayed to have a Zn phosphate layer contg. Ni and Mn, coated with an aq. ethylene-acrylic acid copolymer dispersion, dried to have an org. layer, and further processed to give a laminate showing good shape retention in press working and defect-free surface appearance after electrodeposition coating.				
ST	olefin polymer laminate steel sheet press working; urethane epoxy polymer laminate steel sheet; polyethylene wax particle polymer steel laminate; colloidal silica polymer steel laminate; zinc phosphate coating steel polymer laminate				
IT	Polyurethanes, uses				

RL: PNU (Preparation, unclassified); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(epoxy, top layer component; polymer film-laminated steel sheet showing good shape retention in press working)

IT Laminated plastics, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polymer film-laminated steel sheet showing good shape retention in press working)

IT Epoxy resins, uses
RL: PNU (Preparation, unclassified); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyurethane-, top layer component; polymer film-laminated steel sheet showing good shape retention in press working)

IT Galvanized steel
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(substrate; polymer film-laminated steel sheet showing good shape retention in press working)

IT 7631-86-9, Colloidal silica, uses
RL: MOA (Modifier or additive use); USES (Uses)
(colloidal, top layer component; polymer film-laminated steel sheet showing good shape retention in press working)

IT 7779-90-0, Zinc phosphate
RL: TEM (Technical or engineered material use); USES (Uses)
(primary layer on steel; polymer film-laminated steel sheet showing good shape retention in press working)

IT 12597-69-2, Steel, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(substrate; polymer film-laminated steel sheet showing good shape retention in press working)

IT 9010-77-9D, Acrylic acid-ethylene copolymer, partially neutralized
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(top layer component; polymer film-laminated steel sheet showing good shape retention in press working)

IT 9002-88-4
RL: MOA (Modifier or additive use); USES (Uses)
(wax, spherical particles, top layer component; polymer film-laminated steel sheet showing good shape retention in press working)

IT 7439-95-4, Magnesium, uses 7439-96-5, Manganese, uses 7440-02-0, Nickel, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(zinc phosphate layer component on steel; polymer film-laminated steel sheet showing good shape retention in press working)

IT 7631-86-9, Colloidal silica, uses
RL: MOA (Modifier or additive use); USES (Uses)
(colloidal, top layer component; polymer film-laminated steel sheet showing good shape retention in press working)

RN 7631-86-9 HCPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)

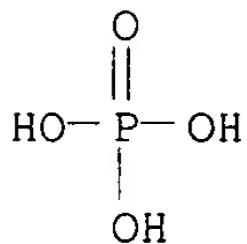
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IT 7779-90-0, Zinc phosphate

RL: TEM (Technical or engineered material use); USES (Uses)
 (primary layer on steel; polymer film-laminated steel sheet showing
 good shape retention in press working)

RN 7779-90-0 HCAPLUS

CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 11 OF 89 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:290785 HCAPLUS

DN 134:312149

TI Metal sheet with plastic covering layer for automobile body

IN Watanabe, Tadashi; Hiraki, Tadayoshi; Tominaga, Akira; Yawada, Takeshi

PA Kansai Paint Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM B32B015-08

ICS B32B015-08; B05D007-14; C23C022-08; C23C022-83; C23C028-00;
C25D013-00

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 55, 72

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI JP 2001113625 A2 20010424 JP 1999-295451 19991018

AB The metal sheet is that treated with a soln. contg. poly(4-vinylphenol) deriv. or its acid salt and covered with a plastic layer. The automobile body is made of the above metal sheet (partially) on the main portion and is subjected to electrodeposition on the metal-exposed parts. The metal sheet shows good corrosion resistance and adhesion of the plastic layer even in the absence of Pb or Cr compds. as anticorrosive pigments. Thus, a galvannealed steel sheet, after treating with Zn phosphate, was dipped in aq. soln. of poly(4-vinylphenol) deriv. (LN 80) at 50.degree., washed with water, dried at 110.degree. for 80 s, laminated with a polyester film through a thermosetting polyester adhesive, and pressed at 200.degree. for 10 min to give test pieces showing cross-cut adhesion 100/100 and length of filiform corrosion 0.5 mm after salt spray test.

ST steel sheet plastic cover automobile body; polyvinylphenol deriv corrosion inhibitor steel sheet; adhesion improvement polyvinylphenol deriv steel sheet; galvannealed steel sheet polyester cover anticorrosive

IT Doors

Roofs

(automotive; polyvinylphenol deriv. aq. soln. for

corrosion inhibition and enhancement of **adhesion** in steel sheet with plastic covering layer for automobile body)

IT Automobiles
(bodies; **polyvinylphenol** deriv. aq. soln. for corrosion inhibition and enhancement of **adhesion** in steel sheet with plastic covering layer for automobile body)

IT Polyesters, uses
RL: DEV (Device component use); USES (Uses)
(films; **polyvinylphenol** deriv. aq. soln. for corrosion inhibition and enhancement of **adhesion** in steel sheet with plastic covering layer for automobile body)

IT Automobiles
(hoods; **polyvinylphenol** deriv. aq. soln. for corrosion inhibition and enhancement of **adhesion** in steel sheet with plastic covering layer for automobile body)

IT Electrodeposition
(**polyvinylphenol** deriv. aq. soln. for corrosion inhibition and enhancement of **adhesion** in steel sheet with plastic covering layer for)

IT Corrosion inhibitors
(**polyvinylphenol** deriv. aq. soln. for corrosion inhibition and enhancement of **adhesion** in steel sheet with plastic covering layer for automobile body)

IT Laminated plastics, uses
RL: DEV (Device component use); USES (Uses)
(**polyvinylphenol** deriv. aq. soln. for corrosion inhibition and enhancement of **adhesion** in steel sheet with plastic covering layer for automobile body)

IT 335022-65-6, LN 80
RL: MOA (Modifier or additive use); USES (Uses)
(**polyvinylphenol** deriv. aq. soln. for corrosion inhibition and enhancement of **adhesion** in steel sheet with plastic covering layer for automobile body)

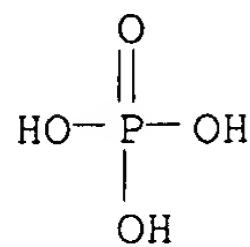
IT 7779-90-0, Zinc phosphate
RL: MOA (Modifier or additive use); USES (Uses)
(**polyvinylphenol** deriv. aq. soln. for corrosion inhibition and enhancement of **adhesion** of plastic covering layer on metal sheet treated with)

IT 12597-69-2, Steel, uses
RL: DEV (Device component use); USES (Uses)
(sheet; **polyvinylphenol** deriv. aq. soln. for corrosion inhibition and enhancement of **adhesion** in steel sheet with plastic covering layer for automobile body)

IT 7779-90-0, Zinc phosphate
RL: MOA (Modifier or additive use); USES (Uses)
(**polyvinylphenol** deriv. aq. soln. for corrosion inhibition and enhancement of **adhesion** of plastic covering layer on metal sheet treated with)

RN 7779-90-0 HCAPLUS

CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



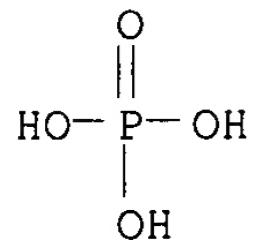
3/2 Zn

L65 ANSWER 12 OF 89 HCAPLUS COPYRIGHT 2002 ACS
 AN 2001:129757 HCAPLUS
 DN 134:179987
 TI **Water-thinned anticorrosive coating compositions for**
metallic plates and metallic fuel tanks
 IN Takahashi, Minoru; Morimoto, Osamu; Murata, Masaki; Tajika, Hiroshi
 PA Toyobo Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 10 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C09D201-00
 ICS C09D005-00; C09D005-08
 CC 42-7 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 55
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001049192	A2	20010220	JP 1999-227661	19990811

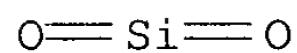
 AB The title compns. (e.g., of polyesters) contain colloidal **silica**
 (e.g., ST-CXS 9) and/or **phosphates** (e.g., PM-303W, Mn
phosphate, Ca **phosphate**, phosphoric acid, Al
biphosphate) and are useful as undercoats (e.g., of acrylic
 polymers, epoxy resins) with curable **aq.** topcoats for
 anticorrosive metallic plates (e.g., of **galvanized** steel) or
 fuel tanks for combustible org. solvents.
 ST polyester **water** thinned anticorrosive coating; acrylic polymer
 polyester coating metallic plate; **galvanized** steel plate
 polyester anticorrosive coating; combustible org solvent tank polyester
 anticorrosive coating
 IT Aminoplasts
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
 engineered material use); USES (Uses)
 (Sumimal M 40W; **water**-thinned anticorrosive coating compns.
 for metallic plates and metallic fuel tanks)
 IT **Phosphates**, uses
 RL: MOA (**Modifier or additive use**); USES (Uses)
 (anticorrosive pigments; **water**-thinned anticorrosive coating
 compns. for metallic plates and metallic fuel tanks)
 IT Coating materials
 (anticorrosive, **water**-thinned; **water**-thinned
 anticorrosive coating compns. for metallic plates and metallic fuel
 tanks)
 IT **Galvanized** steel
 RL: TEM (Technical or engineered material use); USES (Uses)
 (plates to be coated; **water**-thinned anticorrosive coating
 compns. for metallic plates and metallic fuel tanks)

- IT Fuel tanks
(**water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
- IT Epoxy resins, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
- IT Polyesters, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**water**-thinned anticorrosive coatings; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
- IT 25068-38-6, Epikote 1010
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Epikote 1010; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
- IT 122493-85-0, Aluminum molybdenum oxide **phosphate** (AlMnO₂(PO₄))
RL: MOA (**Modifier or additive use**); USES (Uses)
(PM-303W, anticorrosive pigments; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
- IT 9003-08-1, Sumimal M 40W
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Sumimal M 40W; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
- IT 7779-90-0, Zinc **phosphate** 7784-30-7,
Aluminum **phosphate** 10103-46-5, Calcium **phosphate** 10124-54-6, Manganese **phosphate**
RL: MOA (**Modifier or additive use**); USES (Uses)
(anticorrosive pigments; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
- IT 7631-86-9, Colloidal **silica**, uses
RL: MOA (**Modifier or additive use**); USES (Uses)
(colloidal; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
- IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses
RL: MOA (**Modifier or additive use**); USES (Uses)
(powd.; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
- IT 822-06-0, Hexamethylene diisocyanate 122463-72-3, PVA-205
RL: MOA (**Modifier or additive use**); USES (Uses)
(**water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
- IT 87139-72-8, Diethylene glycol-ethylene glycol-isophthalic acid-sodium sulfoisophthalate-terephthalic acid copolymer 247254-80-4 326821-50-5 326821-51-6
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
- IT 7779-90-0, Zinc **phosphate**
RL: MOA (**Modifier or additive use**); USES (Uses)
(anticorrosive pigments; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
- RN 7779-90-0 HCPLUS
- CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

IT 7631-86-9, Colloidal silica, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (colloidal; water-thinned anticorrosive coating compns. for
 metallic plates and metallic fuel tanks)
 RN 7631-86-9 HCPLUS
 CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 13 OF 89 HCPLUS COPYRIGHT 2002 ACS
 AN 2001:40287 HCPLUS
 DN 134:102342
 TI Polymer-coated steel sheet with high corrosion resistance and its
 manufacture
 IN Yoshimi, Naoto; Ando, Satoshi; Furuta, Akihiko; Matsuzaki, Akira; Yamaji,
 Takafumi; Miyoshi, Tatsuya; Kubota, Takahiro; Sagiyama, Masaru; Yamashita,
 Masaaki
 PA Nippon Kokan Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 111 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C23C022-07
 ICS B05D007-14; B05D007-24; B32B015-08; C23C022-00; C23C028-00
 CC 42-10 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 55

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001011645	A2	20010116	JP 1999-316441	19991108
PRAI	JP 1998-332074	A	19981108		
	JP 1998-347937	A	19981120		
	JP 1999-123808	A	19990430		

AB The coated steel sheet comprises a galvanized or Al alloy-plated
 steel sheet having an oxide lower coating and a polymer upper coating with
 thickness 0.1-5 .mu.m. The oxide coating contains (a) oxide
 microparticles and (b) H₃PO₄ and/or its compds., where the coating
 satisfies either of the following condition: (1) thickness is 0.005-3
 .mu.m; (2) the total content of (a) and (b) (as P₂O₅) is 6-3600 mg/m².
 The polymer coating mainly comprises a polymer having OH and/or COOH
 groups, and optionally contains 1-100 parts of inorg. rust-inhibiting
 pigment and/or 1-80 parts of solid lubricants to 100 parts of the polymer.
 In manufg. the coated steel sheet, the oxide coating is formed by using an
 aq. soln. contg. 0.001-3.0 mol/L of (a) and 0.001-6.0 mol/L of

(b). The coated steel sheet is free from Cr₆₊ and useful for automobile, household applications, building materials, etc. Thus, an oxide soln. contg. Snowtex O 0.11, Mg²⁺ 0.20, orthophosphoric acid 0.42 mol/L and then a polymer soln. contg. Epikote E 1009, Beckamine P 196M, and Aerosil R811 were applied on a **galvanized** steel sheet. The resulting coated steel sheet had high resistance to white rust and coating **adhesion**.

- ST chromium free polymer coating steel corrosion resistance
- IT Aminoplasts
 - RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
 - (alkyd resin-; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)
- IT Polyphosphoric acids
 - RL: MOA (**Modifier or additive use**); USES (Uses)
 - (aluminum salts, rust-inhibiting pigment, polymer coating contg.; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)
- IT Alkyd resins
 - RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
 - (aminoplast-; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)
- IT Epoxy resins, uses
 - RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
 - (aminoplast; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)
- IT Coating materials
 - (anticorrosive; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)
- IT Aminoplasts
 - RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
 - (epoxy; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)
- IT Fluoropolymers, uses
 - RL: MOA (**Modifier or additive use**); USES (Uses)
 - (lubricants, polymer coating contg.; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)
- IT Corrosion inhibitors
 - (plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)
- IT Ionomers
- IT Polyurethanes, uses
 - RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material

use); PROC (Process); USES (Uses)
(plated steel sheet having oxide inner coating and polymer outer
coating for high corrosion resistance and coating **adhesion**)

IT Galvanized steel
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM
(Technical or engineered material use); PROC (Process); USES (Uses)
(plated steel sheet having oxide inner coating and polymer outer
coating for high corrosion resistance and coating **adhesion**)

IT Lubricants
(solid; plated steel sheet having oxide inner coating and polymer outer
coating for high corrosion resistance and coating **adhesion**)

IT Polyphosphoric acids
RL: MOA (Modifier or additive use); USES (Uses)
(zinc salts, rust-inhibiting pigment, polymer coating contg.; plated
steel sheet having oxide inner coating and polymer outer coating for
high corrosion resistance and coating **adhesion**)

IT 1344-28-1, Alumina sol 200, uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM
(Technical or engineered material use); PROC (Process); USES (Uses)
(colloidal, oxide coating; plated steel sheet having oxide inner
coating and polymer outer coating for high corrosion resistance and
coating **adhesion**)

IT 75-35-4D, Vinylidene chloride, polymers
RL: PEP (Physical, engineering or chemical process); POF (Polymer in
formulation); PRP (Properties); TEM (Technical or engineered material
use); PROC (Process); USES (Uses)
(latex; plated steel sheet having oxide inner coating and polymer outer
coating for high corrosion resistance and coating **adhesion**)

IT 9002-84-0, Tetrafluoroethylene homopolymer
RL: MOA (Modifier or additive use); USES (Uses)
(lubricants, polymer coating contg.; plated steel sheet having oxide
inner coating and polymer outer coating for high corrosion resistance
and coating **adhesion**)

IT 58465-32-0
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM
(Technical or engineered material use); PROC (Process); USES (Uses)
(metal-plated steel sheet having oxide inner coating and polymer outer
coating for high corrosion resistance and coating **adhesion**)

IT 2466-09-3, Pyrophosphoric acid 7664-38-2, Orthophosphoric acid, uses
7783-28-0, Diammonium phosphate
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM
(Technical or engineered material use); PROC (Process); USES (Uses)
(oxide coating contg.; plated steel sheet having oxide inner coating
and polymer outer coating for high corrosion resistance and coating
adhesion)

IT 1314-23-4, NZS 30A, uses 7631-86-9, Silica,
uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM
(Technical or engineered material use); PROC (Process); USES (Uses)
(oxide coating; plated steel sheet having oxide inner coating and
polymer outer coating for high corrosion resistance and coating
adhesion)

IT 81546-24-9P 268543-23-3P 268737-65-1P 270908-96-8P
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical
process); POF (Polymer in formulation); PRP (Properties); TEM (Technical
or engineered material use); PREP (Preparation); PROC (Process); USES
(Uses)
(plated steel sheet having oxide inner coating and polymer outer
coating for high corrosion resistance and coating **adhesion**)

IT 9011-06-7, Krehalon AO 25608-26-8, Chemipearl S 650 152743-60-7,

Superflex 150 268736-83-0, Epomik WR 942
 RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT 7429-90-5, Aluminum, uses 12597-69-2, Steel, uses 12609-49-3
 52308-11-9 52360-06-2 96539-23-0 112964-43-9 115253-85-5
 116903-21-0 119412-76-9
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT 471-34-1, Calcium carbonate, uses 1344-95-2, Calcium silicate
7779-90-0, Zinc orthophosphate 7784-30-7,
 Aluminum orthophosphate 10103-46-5, Calcium phosphate 13530-50-2,
 Aluminum dihydrogenphosphate 13530-54-6 **13598-37-3**,
Zinc dihydrogenphosphate 14332-59-3, Zinc
 phosphite **14332-60-6**, Zinc hydrogenphosphate
 23209-61-2, Calcium zinc phosphate 237762-16-2,
 Shieldex C303
 RL: MOA (Modifier or additive use); USES (Uses)
 (rust-inhibiting pigment, polymer coating contg.; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT 9002-88-4, Ethene homopolymer
 RL: MOA (Modifier or additive use); USES (Uses)
 (wax, lubricants, polymer coating contg.; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

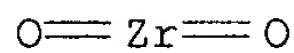
IT **1344-28-1, Alumina sol 200**, uses
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (colloidal, oxide coating; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

RN 1344-28-1 HCPLUS
 CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)

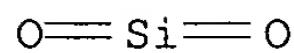
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **1314-23-4, NZS 30A**, uses **7631-86-9, Silica**,
 uses
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (oxide coating; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

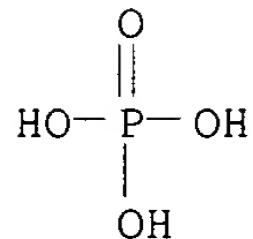
RN 1314-23-4 HCPLUS
 CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)



RN 7631-86-9 HCPLUS
 CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)

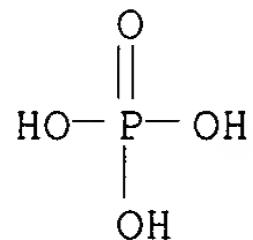


IT 7779-90-0, Zinc orthophosphate
 13598-37-3, Zinc dihydrogenphosphate
 14332-59-3, Zinc phosphite 14332-60-6, Zinc
 hydrogenphosphate
 RL: MOA (Modifier or additive use); USES (Uses)
 (rust-inhibiting pigment, polymer coating contg.; plated steel sheet
 having oxide inner coating and polymer outer coating for high corrosion
 resistance and coating adhesion)
 RN 7779-90-0 HCPLUS
 CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



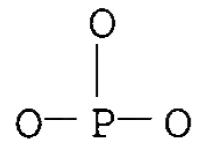
3/2 Zn

RN 13598-37-3 HCPLUS
 CN Phosphoric acid, zinc salt (2:1) (8CI, 9CI) (CA INDEX NAME)



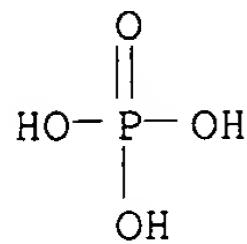
1/2 Zn

RN 14332-59-3 HCPLUS
 CN Phosphonic acid, zinc salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Zn

*** FRAGMENT DIAGRAM IS INCOMPLETE ***
 RN 14332-60-6 HCPLUS
 CN Phosphoric acid, zinc salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Zn

L65 ANSWER 14 OF 89 HCPLUS COPYRIGHT 2002 ACS
 AN 2001:36742 HCPLUS
 DN 134:117175
 TI Powder coating process for metals including pretreatment with **phenolic** compounds to improve adhesion and corrosion resistance
 IN Shida, Masatsune
 PA Kansai Paint Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 11 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B05D007-14
 ICS B05D003-10; B05D007-24; C09D161-04; C09D005-03; C09D201-00
 CC 42-2 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 55, 56
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001009365	A2	20010116	JP 1999-180901	19990625
AB	The process comprises a pretreatment of phosphate salt-treated metals with aq. soln. of .gtoreq.1 (2,6-C ₆ H ₃ X ₁ OCH ₂) _n [I; n = 2-50; X = H, OH, C ₁ -5 (hydroxy)alkyl, C ₆ -12 aryl, benzyl, benzal, unsatd. hydrocarbon group forming a naphthalene ring with the above benzene ring, CR ₁ R ₂ -1,4-C ₆ H ₃ Y ₂ OH; R ₁ , R ₂ = H, OH, C ₁ -5 alkyl, C ₁ -10 hydroxyalkyl; Y ₁ , Y ₂ = Z; Z = CH ₂ NR ₃ R ₄ , CH ₂ N+R ₅ R ₆ R ₇ ; R ₃ -7 = H, C ₁ -10 (hydroxy)alkyl; av. no. of Z per benzene ring (NZ) 0.2-1.0], drying, and powder coating. Thus, a steel sheet was successively immersed in Palbond L 3020 (Zn phosphate-based surface treating agent) and I (X = H; Y ₁ = CH ₂ NMe ₂ ; n = 3, NZ 1.00), coated with powders contg. Epikote 1004 (bisphenol A epoxy resin) and adipic dihydrazide, and baked to give a test piece with good water , corrosion, and exfoliation resistance.				
ST	metal coating phenol pretreatment water corrosion resistance; bisphenol epoxy resin adipic hydrazide powder coating; steel zinc phosphate phenol amine pretreatment coating				
IT	Coating materials (anticorrosive, water -resistant; powder coating process for metals including pretreatment with phenolic compds. to improve adhesion and corrosion resistance)				
IT	Phenols , uses RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses) (compds.; powder coating process for metals including pretreatment with phenolic compds. to improve adhesion and corrosion resistance)				
IT	Epoxy resins, uses RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)				

- (dihydrazide-crosslinked; powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)
- IT **Polyesters**, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(epoxy; powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)
- IT **Phosphates**, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(for primary surface treatment; powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)
- IT **Epoxy resins**, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyester-; powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)
- IT **Polyesters**, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyisocyanate-crosslinked; powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)
- IT **Galvanized steel**
Metals, miscellaneous
RL: MSC (Miscellaneous)
(powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)
- IT **Phenolic resins**, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)
- IT **Coating process**
(powder; powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)
- IT 7779-90-0, Zinc phosphate 10402-24-1, Iron phosphate 142106-76-1, Palbond L 3020 320368-56-7, Palfos 1077
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(for primary surface treatment; powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)
- IT 62300-19-0P, Butyl methacrylate-dodecanedioic acid-glycidyl methacrylate-methyl methacrylate-styrene copolymer 107375-83-7P, Adipic dihydrazide-**bisphenol A**-epichlorohydrin copolymer 191607-07-5P 320369-58-2P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)
- IT 12597-69-2, Steel, miscellaneous
RL: MSC (Miscellaneous)
(powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)
- IT 320582-22-7 320582-65-8 320583-24-2
RL: PRP (Properties); TEM (Technical or engineered material use); USES

(Uses)

(powder coating process for metals including pretreatment with **phenolic compds.** to improve adhesion and corrosion resistance)

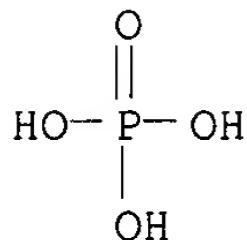
IT 7779-90-0, Zinc phosphate

RL: PRP (Properties); TEM (Technical or engineered material use); USES
(Uses)

(for primary surface treatment; powder coating process for metals including pretreatment with **phenolic compds.** to improve adhesion and corrosion resistance)

RN 7779-90-0 HCAPLUS

CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 15 OF 89 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:559602 HCAPLUS

DN 135:125531

TI Conversion primer bath for dried-in-place coating with **zinc phosphate** suitable for **galvanized steel**

IN Cuyler, Brian B.; Miller, Robert W.

PA Henkel Corporation, USA

SO Eur. Pat. Appl., 18 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM C23C022-12

ICS C23C022-18

CC 55-6 (Ferrous **Metals** and Alloys)

Section cross-reference(s): 42

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1120478	A2	20010801	EP 2001-101928	20010129
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 2002007872	A1	20020124	US 2001-769128	20010124
PRAI	US 2000-178685P	P	20000128		
	US 2000-245694P	P	20001103		

AB The **aq.** conversion bath for adherent coating of **galvanized steel** with **Zn phosphate** contains:
(a) **phosphate** ions at 1.0-400 g/L; (b) Zn cations at 0.003-0.10 of the phosphate anion content; and (c) **adhesion promoters** selected from film-forming org. substances, amino-**phenolic** polymers, and/or **inorg. oxides** of Si, Al, Ti, and/or Zr. The phosphating bath preferably contains Mn and Ni cations, and either Fe cations or hydroxylamine. The substrate is coated in the primer bath at 20-30.degree., dried at .ltoreq.180.degree. to form the phosphate conversion coating at 0.20-1.0 g/m², and is typically finished by painting. **Adhesion** to paint is improved when the

applicants

adhesion promoter is acrylic film former, and the adhesion to elastomers is improved by vinyl-phenol polymer in the presence of Ca cations in the phosphating bath. The aq. conc. for primer bath typically contains total H₂PO₄ 40.6, Zn²⁺ 1.37, Fe²⁺ 0.15, Mn²⁺ 3.95, and Ni²⁺ 1.33%. The primer bath was prep'd. with the conc. 16, poly(acrylic acid) soln. 8.0 mL, and deionized water for 100 mL total, and the primer coating was applied at 1.6-2.2 g/m² with drying at 177.degree. and passed the steel strip bending test.

ST conversion bath phosphate primer galvanized steel; zinc phosphate primer bath galvanized steel

IT Phenolic resins, uses
RL: MOA (Modifier or additive use); USES (Uses)
(amino-, phosphating bath with; conversion primer bath for dried-in-place Zn phosphate coating on galvanized steel)

IT Galvanized steel
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(coating of; conversion primer bath for dried-in-place Zn phosphate coating on galvanized steel)

IT Acrylic polymers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(phosphating bath with; conversion primer bath for dried-in-place Zn phosphate coating on galvanized steel)

IT Coating process
(phosphating, primer, bath for; conversion primer bath for dried-in-place Zn phosphate coating on galvanized steel)

IT 1314-23-4, Zirconia, uses 1344-28-1,
Alumina, uses 7631-86-9, Silica, uses
13463-67-7, Titania, uses
RL: MOA (Modifier or additive use); USES (Uses)
(colloidal, phosphating bath with; conversion primer bath for dried-in-place Zn phosphate coating on galvanized steel)

IT 9081-54-3, Rhoplex HA-16
RL: MOA (Modifier or additive use); USES (Uses)
(latex, phosphating bath with; conversion primer bath for dried-in-place Zn phosphate coating on galvanized steel)

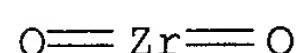
IT 79-10-7, Acrylic acid, uses 79-41-4, Methacrylic acid, uses 1344-43-0,
Manganous oxide, uses 9003-01-4, Poly(acrylic acid) 10381-36-9, Nickel phosphate 13598-37-3, Zinc dihydrogen phosphate 31257-96-2, Vinyl phenol
RL: MOA (Modifier or additive use); USES (Uses)
(phosphating bath with; conversion primer bath for dried-in-place Zn phosphate coating on galvanized steel)

IT 7779-90-0, Zinc phosphate
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(primer, coating with; conversion primer bath for dried-in-place Zn phosphate coating on galvanized steel)

IT 1314-23-4, Zirconia, uses 1344-28-1,
Alumina, uses 7631-86-9, Silica, uses
13463-67-7, Titania, uses
RL: MOA (Modifier or additive use); USES (Uses)
(colloidal, phosphating bath with; conversion primer bath for dried-in-place Zn phosphate coating on galvanized steel)

RN 1314-23-4 HCPLUS

CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)



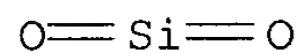
RN 1344-28-1 HCPLUS

CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

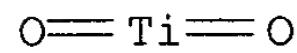
RN 7631-86-9 HCPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 13463-67-7 HCPLUS

CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)

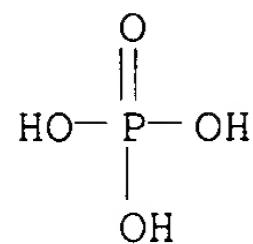


IT 13598-37-3, Zinc dihydrogen phosphate

RL: MOA (Modifier or additive use); USES (Uses)
 (phosphating bath with; conversion primer bath for
 dried-in-place Zn phosphate coating on
 galvanized steel)

RN 13598-37-3 HCPLUS

CN Phosphoric acid, zinc salt (2:1) (8CI, 9CI) (CA INDEX NAME)



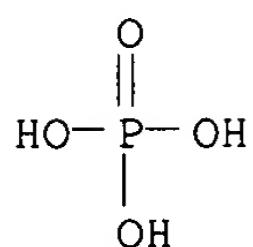
1/2 Zn

IT 7779-90-0, Zinc phosphate

RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (primer, coating with; conversion primer bath for dried-in-place
 Zn phosphate coating on galvanized steel)

RN 7779-90-0 HCPLUS

CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 16 OF 89 HCAPLUS COPYRIGHT 2002 ACS
 AN 2001:596466 HCAPLUS
 DN 135:324289
 TI Model electrochemical cell study of cut-edge corrosion inhibition on coil-coated steel sheet by chromate-, phosphate-, and calcium-containing pigments
 AU Zin, I. M.; Pokhmurskii, V. I.; Scantlebury, J. D.; Lyon, S. B.
 CS Karpenko Physico-Mechanical Institute of the National Academy of Sciences of Ukraine, Lvov, 290601, Ukraine
 SO Journal of the Electrochemical Society (2001), 148(8), B293-B298
 CODEN: JESOAN; ISSN: 0013-4651
 PB Electrochemical Society
 DT Journal
 LA English
 CC 72-6 (Electrochemistry)
 Section cross-reference(s): 42, 55
 AB Corrosion at cut edges is the most important failure mechanism of org.-coated, profiled **galvanized** steel architectural claddings. Currently, edge corrosion is generally controlled by the addn. of strontium chromate in the paint primers; however, there is substantial interest in chromate replacements due to environmental reasons. This work describes an exptl. study of inhibition with specific relevance to the cut-edge situation; essentially equiv. to a small **galvanic** cell between zinc and steel. Although chromate initially acts as an anodic inhibitor for zinc corrosion at the cut edge, over a few hours of immersion, it was found to also strongly inhibit the steel cathode, hence reducing the cathodic protection current requirement on the zinc and thus acted as a mixed inhibitor in the cut-edge **galvanic** cell. Although individually, **zinc phosphate** and calcium ion-exchanged **silica** pigments had relatively poor inhibition, they showed a strong synergistic effect. Thus, a mixt. of the two compds. had comparable inhibitive efficiency to chromate. This is due to a similar mixed inhibition mechanism as chromate. Thus, anodic inhibition of zinc was evident as well as strong cathodic inhibition on the steel due to the formation of a compact, thin film contg. **zinc**, calcium, and **phosphate** species.
 ST model electrochem cell study cut edge corrosion; inhibition coil coated steel sheet chromate phosphate calcium pigment
 IT Acid rain
 (artificial; in model electrochem. cell study of cut-edge corrosion inhibition on coil-coated steel sheet by chromate-, phosphate-, and calcium-contg. pigments)
 IT Corrosion inhibitors
 (chromate-, phosphate-, and calcium-contg. pigments for cut-edge corrosion of coil coated steel sheet)
 IT Corrosion
 (model electrochem. cell study of cut-edge corrosion)

IT Electrochemical cells
 Primers (paints)
 (model electrochem. cell study of cut-edge corrosion inhibition on coil-coated steel sheet by chromate-, phosphate-, and calcium-contg. pigments)

IT **Galvanized steel**
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
 (model electrochem. cell study of cut-edge corrosion inhibition on coil-coated steel sheet by chromate-, phosphate-, and calcium-contg. pigments)

IT Electrolytic polarization
 (of sepd. steel and zinc: model electrochem. cell study of cut-edge corrosion inhibition on coil-coated steel sheet by chromate-, phosphate-, and calcium-contg. pigments)

IT 7631-99-4, Sodium nitrate, processes 7647-14-5, Sodium chloride, processes 7664-93-9, Sulfuric acid, processes 7697-37-2, Nitric acid, processes 7757-82-6, Sodium sulfate, processes 7783-20-2, Ammonium sulfate, processes
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (artificial rain contg.; in model electrochem. cell study of cut-edge corrosion inhibition on coil-coated steel sheet by chromate-, phosphate-, and calcium-contg. pigments)

IT 7440-66-6, Zinc, properties 12597-69-2, Steel, properties
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
 (electrolytic polarization of sepd. steel and zinc: model electrochem. cell study of cut-edge corrosion inhibition on coil-coated steel sheet by chromate-, phosphate-, and calcium-contg. pigments)

IT 7789-06-2, Strontium chromate 99085-19-5, K-White 84
 RL: MOA (Modifier or additive use); USES (Uses)
 (pigment in artificial rain water; model electrochem. cell study of cut-edge corrosion inhibition on coil-coated steel sheet by chromate-, phosphate-, and calcium-contg. pigments)

IT 25013-42-7, Actirox 106 227605-13-2, Shieldex CP4 7394
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (pigment in artificial rain water; model electrochem. cell study of cut-edge corrosion inhibition on coil-coated steel sheet by chromate-, phosphate-, and calcium-contg. pigments)

RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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- (7) Johnson, J; European Cultural Heritage Newsletter 1988, V2(4), P13
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- (10) Porter, F; Br Corros J, London 1969, V4, P179 HCPLUS
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- (14) Uhlig, H; J Electrochem Soc 1955, V102, P59 HCPLUS
- (15) Walter, G; Corros Sci 1993, V35, P1391 HCPLUS
- (16) Wormwell, F; Br Corros J, London 1967, V2, P6 HCPLUS
- (17) Zou, F; Galvatech '95 Conference Proceedings 1995, P837 HCPLUS

L65 ANSWER 17 OF 89 HCAPLUS COPYRIGHT 2002 ACS
 AN 2000:639110 HCAPLUS
 DN 133:226329
 TI No-rinse primer bath for applying zinc phosphate coating before painting
 IN Rivera, Jose B.
 PA Bulk Chemicals, Inc., USA
 SO U.S., 6 pp.
 CODEN: USXXAM
 DT Patent
 LA English
 IC ICM C23C022-00
 NCL 148251000
 CC 56-6 (Nonferrous Metals and Alloys)
 Section cross-reference(s): 42

FAN.CNT 1

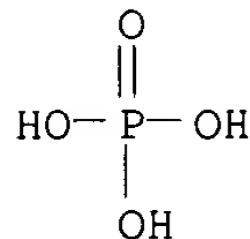
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6117251	A	20000912	US 1999-275586	19990324
AB	The aq. primer bath for forming of Zn phosphate coating on a metal surface contains: (a) Zn(H ₂ PO ₄) ₂ ; (b) H ₃ PO ₄ ; (c) polyvinyl alc. as a polyhydric alc. reactive to acid; and (d) a metal salt (esp. Ni or Co nitrates) and an optional fluoride. The typical bath is prep'd. by mixing powd. ZnO 14.42, aq. 75% H ₃ PO ₄ 57.55, Co(NO ₃) ₂ .6H ₂ O 2.37, polyvinyl alc. 0.83, NH ₄ HF ₂ 0.03%, and deionized water as the balance. The coating from the bath is applied without subsequent rinsing and hot drying, and shows decreased free acidity on the metal surface. The dried Zn phosphate coating decreases metal corrosion, and increases the adhesion of subsequent sealant and/or paint. The bath is suitable for dark primer coating on Zn surface, esp. to decrease the reflectivity of galvanized steel.				
ST	zinc phosphate aq primer bath dark coating; galvanized steel dark coating aq phosphate bath				
IT	Galvanized steel RL: PEP (Physical, engineering or chemical process); PROC (Process) (phosphating of; no-rinse aq. primer bath for applying zinc phosphate coating before painting)				
IT	Coating process (phosphating, primer bath; no-rinse aq. primer bath for applying zinc phosphate coating before painting)				
IT	7779-90-0, Zinc phosphate RL: TEM (Technical or engineered material use); USES (Uses) (coating with; no-rinse aq. primer bath for applying zinc phosphate coating before painting)				
IT	1314-13-2, Zinc oxide (ZnO), uses 1341-49-7, Ammonium bifluoride 7664-38-2, Phosphoric acid, uses 7664-39-3, Hydrofluoric acid), uses 7783-47-3, Stannous fluoride 9002-89-5, Polyvinyl alcohol 10026-22-9, Cobalt nitrate hexahydrate 13138-45-9, Nickel dinitrate 13598-37-3, Zinc dihydrogen phosphate RL: MOA (Modifier or additive use); USES (Uses) (phosphating bath contg.; no-rinse aq. primer bath for applying zinc phosphate coating before painting)				

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

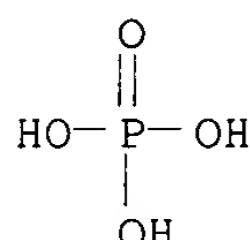
- (1) Kunde; "Performance Evaluation of Prephosphated Galvannealed Steel Sheet for Automotive Applications," SAE Technical Paper Series 970152 1997, P21 HCAPLUS
- (2) Lautensleger; "Formability Performance of Prephosphated Galvannealed Sheet Steel," SAE Technical Paper Series 970717 1997, P147 HCAPLUS
- (3) Miller; US 5378292 1995 HCAPLUS

(4) Oka; US 4053328 1977 HCPLUS
 (5) Reed; US 3939014 1976 HCPLUS
 (6) Senzaki; US 4338141 1982 HCPLUS
 (7) Sienkowski; US 5261973 1993 HCPLUS
 (8) Sugama; US 4659395 1987 HCPLUS
 (9) Sugama, T; Journal of Coatings Tech 1989, V61(771), P43 HCPLUS
 IT 7779-90-0, Zinc phosphate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (coating with; no-rinse aq. primer bath for applying zinc
 phosphate coating before painting)
 RN 7779-90-0 HCPLUS
 CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

IT 13598-37-3, Zinc dihydrogen phosphate
 RL: MOA (Modifier or additive use); USES (Uses)
 (phosphating bath contg.; no-rinse aq. primer bath for
 applying zinc phosphate coating before painting)
 RN 13598-37-3 HCPLUS
 CN Phosphoric acid, zinc salt (2:1) (8CI, 9CI) (CA INDEX NAME)



1/2 Zn

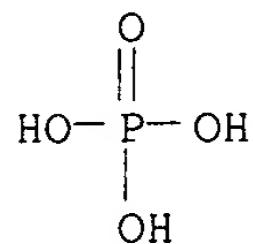
L65 ANSWER 18 OF 89 HCPLUS COPYRIGHT 2002 ACS
 AN 2000:657831 HCPLUS
 DN 133:239479
 TI Resin compositions and anticorrosive chromate-free coated steel plates
 therefrom
 IN Kikuchi, Katsuhira; Tada, Chiyoko; Suzuki, Yukiko; Ogata, Hiroyuki; Umino,
 Shigeru
 PA Kawasaki Steel Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B05D007-14
 ICS C08J005-12; C08L101-02; C23C026-00
 CC 42-10 (Coatings, Inks, and Related Products)

Section cross-reference(s): 55

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000254583	A2	20000919	JP 1999-58370	19990305
AB	Title compns., having a pH of 5-12, contain metal ions and base-neutralized anionic water-sol. resins. A galvanized steel plate was coated with a NH3 soln.-neutralized aq. compn. (pH 7.0) contg. A 6310 (acrylic acid-maleic acid copolymer) 100, Mn phosphate 5, and other additives 15 parts and baked at 135.degree. for 15 min to form a plate with good coating film adhesion and anticorrosion at flat surfaces and edges.				
ST	anticorrosion steel coating neutralized anionic resin metal ion; adhesion steel coating neutralized anionic resin metal ion				
IT	Coating materials (anticorrosive; metal ion- and neutralized anionic resin-contg. aq. coatings for chromate-free steel for anticorrosion)				
IT	Galvanized steel RL: MSC (Miscellaneous) (metal ion- and neutralized anionic resin-contg. aq. coatings for chromate-free steel for anticorrosion)				
IT	Ionomers RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (metal ion- and neutralized anionic resin-contg. aq. coatings for chromate-free steel for anticorrosion)				
IT	25053-28-5, Acrylic acid-vinylsulfonic acid copolymer RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (Aron A 6015; metal ion- and neutralized anionic resin-contg. aq. coatings for chromate-free steel for anticorrosion)				
IT	29132-58-9, Acrylic acid-maleic acid copolymer RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (Aron A 6310; metal ion- and neutralized anionic resin-contg. aq. coatings for chromate-free steel for anticorrosion)				
IT	26099-09-2, Poly(maleic acid) RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (Aron A 6510; metal ion- and neutralized anionic resin-contg. aq. coatings for chromate-free steel for anticorrosion)				
IT	7779-90-0, Zinc phosphate 10043-83-1, Magnesium phosphate 10124-54-6, Manganese phosphate RL: MOA (Modifier or additive use); USES (Uses) (metal ion- and neutralized anionic resin-contg. aq. coatings for chromate-free steel for anticorrosion)				
IT	9003-01-4, Aron A 30LL RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (metal ion- and neutralized anionic resin-contg. aq. coatings for chromate-free steel for anticorrosion)				
IT	11149-84-1 37346-11-5 RL: MSC (Miscellaneous) (platings, on steel; metal ion- and neutralized anionic resin-contg. aq. coatings for chromate-free steel for anticorrosion)				
IT	7779-90-0, Zinc phosphate RL: MOA (Modifier or additive use); USES (Uses) (metal ion- and neutralized anionic resin-contg. aq. coatings for chromate-free steel for anticorrosion)				
RN	7779-90-0 HCAPLUS				

CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 19 OF 89 HCPLUS COPYRIGHT 2002 ACS
 AN 2000:484171 HCPLUS
 DN 133:90819
 TI Anticorrosive, nontoxic coatings for precoated metal sheets
 IN Furukawa, Hiroyasu; Kanai, Hiroshi; Ueda, Kohei; Takahashi, Akira; Nomura, Hiromasa; Miyabayashi, Eimei; Hirata, Fumiaki
 PA Nippon Steel Corp., Japan; Takeda Chemical Industries, Ltd.
 SO Jpn. Kokai Tokkyo Koho, 14 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C09D175-04
 ICS C09D005-08; C23C022-17; C23C022-40
 CC 42-10 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 55
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000198963	A2	20000718	JP 1998-374742	19981228
AB	The coatings comprise as film-forming resin components (a) polyester polyols with functionality ≥ 3 , (b) epoxy resins having secondary OH groups on which lactones or alkylene oxides are added, and (c) blocked org. polyisocyanates or blocked prepolymers of org. polyisocyanates and active H compds. and as non-Cr corrosion inhibitors phosphate ion sources and vanadate ion sources (forming ions in presence of H_2O and O). Thus, 600 parts of a 1.52:3.02:2.27 (mol) hydrogenated bisphenol A -adipic acid-trimethylolpropane polyester polyol and 400 parts Placcel G 402 (.epsilon.-caprolactone- bisphenol A epoxy resin adduct) were dissolved in cyclohexanone to give a soln. (A), sep., 241.6 parts 1,3-bis(isocyanatomethyl)cyclohexane was treated with 180.6 parts Me Et ketoxime and further treated with 177.0 parts polyester polyol (adipic acid-ethylene glycol-trimethylolpropane-dipropylene glycol copolymer) to give a blocked polyisocyanate soln., 24.5 parts of which was mixed with 43.4 parts A, premixed 5 parts MgHPO_4 and 5 parts $\text{Mn}_2\text{O}_3\cdot\text{V}_2\text{O}_5$, and 1,1,3,3-tetrabutyl-1,3-diacetoxydistannoxane, applied on a galvanized steel sheet, baked, and over-coated to give a test piece showing excellent corrosion resistance.				
ST	epoxy polyester polyurethane coating anticorrosive steel; phosphate vanadate corrosion inhibitor polyurethane coating				
IT	Borosilicate glasses RL: MOA (Modifier or additive use); USES (Uses) (Pyrex; anticorrosive, nontoxic coatings for precoated metal sheets)				
IT	Glass, uses RL: MOA (Modifier or additive use); USES (Uses) (anticorrosive, nontoxic coatings for precoated metal sheets)				

IT Galvanized steel
RL: MSC (Miscellaneous)
(anticorrosive, nontoxic coatings for precoated metal sheets)

IT Coating materials
(anticorrosive; anticorrosive, nontoxic coatings for precoated metal sheets)

IT Polyurethanes, uses
Polyurethanes, uses
Polyurethanes, uses
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(epoxy-polyester-; anticorrosive, nontoxic coatings for precoated metal sheets)

IT Polyesters, uses
Polyesters, uses
Polyesters, uses
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(epoxy-polyurethane-; anticorrosive, nontoxic coatings for precoated metal sheets)

IT Corrosion inhibitors
(pigments, phosphate and vanadate; anticorrosive, nontoxic coatings for precoated metal sheets)

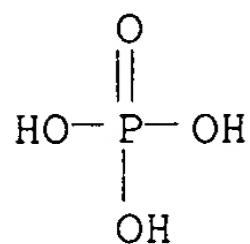
IT Epoxy resins, uses
Epoxy resins, uses
Epoxy resins, uses
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyester-polyurethane-; anticorrosive, nontoxic coatings for precoated metal sheets)

IT 502-44-3DP, .epsilon.-Caprolactone, reaction products with epoxy resins, polymers 264148-16-5P, Adipic acid-1,3-bis(isocyanatomethyl)cyclohexanedimethyl isophthalate-dipropylene glycol-ethylene glycol-1,6-hexanediol-Placcel G 402-trimethylolpropane copolymer 264148-17-6P 264148-18-7P, Dimethyl isophthalate-1,6-hexanediol-Placcel G 402-Takenate D 160N-trimethylolpropane copolymer 264148-19-8P 264148-20-1P 264148-21-2P 264148-22-3P 264148-23-4P 264148-23-4P 281660-41-1P 281660-42-2P 281660-43-3P
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(anticorrosive, nontoxic coatings for precoated metal sheets)

IT 1305-62-0, Calcium hydroxide, uses 1305-78-8, Calcium oxide, uses 1310-65-2, Lithium hydroxide 1314-34-7, Vanadium trioxide 1314-56-3, Phosphorus pentoxide, uses 2466-09-3, Pyrophosphoric acid 7664-38-2, Orthophosphoric acid, uses 7757-86-0 7757-87-1, Trimagnesium phosphate 7757-93-9 7758-23-8 7758-87-4, Calcium phosphate 7779-90-0, Zinc phosphate 10343-62-1, Metaphosphoric acid 12040-58-3 13477-39-9, Calcium metaphosphate 13550-42-0, Calcium vanadium oxide (Ca₃V₂O₈) 13573-13-2, Magnesium vanadium oxide (MgV₂O₆) 14100-64-2, Calcium vanadium oxide (CaV₂O₆) 14986-94-8, Manganese vanadium oxide (MnV₂O₆) 15469-60-0, Vanadium zinc oxide (V₂Zn₃O₈) 15607-56-4, Cobalt vanadium oxide (CoV₂O₆) 138882-01-6, Manganese vanadium oxide (MnVO₄)
RL: MOA (Modifier or additive use); USES (Uses)
(anticorrosive, nontoxic coatings for precoated metal sheets)

IT 7779-90-0, Zinc phosphate
RL: MOA (Modifier or additive use); USES (Uses)

(anticorrosive, nontoxic coatings for precoated metal sheets)
RN 7779-90-0 HCPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 20 OF 89 HCPLUS COPYRIGHT 2002 ACS
AN 2000:405489 HCPLUS
DN 133:31883
TI Nonpolluting precoated metal sheets with excellent adhesion of coatings
IN Furukawa, Hiroyasu; Ueda, Kohei; Nomura, Hiromasa; Takahashi, Akira;
Kanai, Hiroshi
PA Nippon Steel Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B05D007-14
ICS B05D007-24; B32B015-08
CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): 55
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000167482	A2	20000620	JP 1998-340633	19981130
AB	At least one side of metal sheets is coated with a layer contg. 100 parts (as solid) aq. resins, 0.2-50 parts tannin or tannic acid, and optionally 10-500 parts SiO₂ microparticles and further coated with a color layer. Thus, an electrogalvanized steel sheet was coated with an acrylic olefin resin contg. 2.5 phr tannic acid Al and 30 phr Snowtex N, dried at 150.degree., primed with a polyester contg. Zn phosphite, dried at 220.degree., further coated with FL 100HQ (polyester), and dried at 220.degree. to give a test piece showing excellent adhesion of the top coat even after immersion in boiling water and good processability.				
ST	nonpolluting precoated steel tannic acid base				
IT	Tannins RL: TEM (Technical or engineered material use); USES (Uses) (Brewtan, Tanal 1; nonpolluting precoated metal sheets with good adhesion of coatings)				
IT	Tannins RL: TEM (Technical or engineered material use); USES (Uses) (aluminum salts; nonpolluting precoated metal sheets with good adhesion of coatings)				
IT	Molybdates Phosphates, uses RL: TEM (Technical or engineered material use); USES (Uses) (anticorrosive pigments, primers contg.; nonpolluting precoated metal sheets with good adhesion of coatings)				

IT Coating materials
 (anticorrosive; nonpolluting precoated metal sheets with good adhesion of coatings)

IT Acrylic polymers, uses
 Epoxy resins, uses
Galvanized steel
 Polyesters, uses
 Polyurethanes, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (nonpolluting precoated metal sheets with good adhesion of coatings)

IT Group VB element compounds
 RL: TEM (Technical or engineered material use); USES (Uses)
 (vanadates, anticorrosive pigments, primers contg.; nonpolluting precoated metal sheets with good adhesion of coatings)

IT **14332-59-3**, Zinc phosphite
 RL: TEM (Technical or engineered material use); USES (Uses)
 (anticorrosive pigments, primers contg.; nonpolluting precoated metal sheets with good adhesion of coatings)

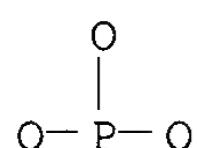
IT **7631-86-9**, Snowtex N, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (colloidal; nonpolluting precoated metal sheets with good adhesion of coatings)

IT 264189-52-8, FL 100HQ
 RL: TEM (Technical or engineered material use); USES (Uses)
 (nonpolluting precoated metal sheets with good adhesion of coatings)

IT 269734-06-7, P 108 (Epoxy resin) 269734-07-8, P 641 (Polymer)
 269734-14-7, P 304
 RL: TEM (Technical or engineered material use); USES (Uses)
 (primer; nonpolluting precoated metal sheets with good adhesion of coatings)

IT **14332-59-3**, Zinc phosphite
 RL: TEM (Technical or engineered material use); USES (Uses)
 (anticorrosive pigments, primers contg.; nonpolluting precoated metal sheets with good adhesion of coatings)

RN 14332-59-3 HCPLUS
 CN Phosphonic acid, zinc salt (1:1) (8CI, 9CI) (CA INDEX NAME)

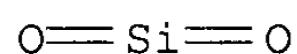


Zn

*** FRAGMENT DIAGRAM IS INCOMPLETE ***

IT **7631-86-9**, Snowtex N, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (colloidal; nonpolluting precoated metal sheets with good adhesion of coatings)

RN 7631-86-9 HCPLUS
 CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 21 OF 89 HCPLUS COPYRIGHT 2002 ACS
 AN 2000:301084 HCPLUS
 DN 132:324435
 TI Resin-coated **galvanized** steel plates with good **adhesion**
 and anticorrosion
 IN Ishizuka, Kiyokazu
 PA Nippon Steel Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C23C028-00
 ICS B05D003-10; B05D007-14; B05D007-24; C23C020-06
 CC 55-6 (Ferrous **Metals** and Alloys)
 Section cross-reference(s): 42
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000129460	A2	20000509	JP 1998-308723	19981029

AB Title steel plates with no chromium treatment are prepd. by plating with zinc (alloy), treating with **aq.** soln. contg. phosphoric acid polyvalent metal salt and metal oxide sol to form an amorphous layer of 0.05-1 g/m², and finally coating with a resin layer of 0.5-2 g/m². Thus, an electrogalvanized steel sheet was coated with a 0.05-g/m² layer contg. Mg(H₂PO₄)₂ 100 and **silica** sol 30 parts, and then with 1.0-g/m² layer contg. ethylene-acrylic acid copolymer 100 and **silica** sol 30 parts, showing good naked anticorrosion and **adhesion** properties.

ST **galvanized** steel resin coating anticorrosion **adhesion**; acrylic acid ethylene copolymer coating **galvanized** steel anticorrosion **adhesion**; magnesium phosphate colloidal **silica** **galvanized** steel anticorrosion **adhesion**

IT Epoxy resins, properties
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (acrylic; prepn. of resin-coated **galvanized** steel plates with good **adhesion** and anticorrosion)

IT Coating materials
 (anticorrosive; prepn. of resin-coated **galvanized** steel plates with good **adhesion** and anticorrosion)

IT Coating process
 (prepn. of resin-coated **galvanized** steel plates with good **adhesion** and anticorrosion)

IT **Galvanized** steel
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (prepn. of resin-coated **galvanized** steel plates with good **adhesion** and anticorrosion)

IT Acrylic polymers, properties
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (prepn. of resin-coated **galvanized** steel plates with good **adhesion** and anticorrosion)

IT Polyurethanes, properties
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (prepn. of resin-coated **galvanized** steel plates with good **adhesion** and anticorrosion)

IT 7631-86-9, Silica, uses
 RL: MOA (Modifier or additive use); TEM (Technical or engineered

material use); USES (Uses)
 (prepn. of resin-coated **galvanized** steel plates with good
adhesion and anticorrosion)

IT 9002-88-4 9010-77-9, Acrylic acid-ethylene copolymer
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
 engineered material use); USES (Uses)
 (prepn. of resin-coated **galvanized** steel plates with good
adhesion and anticorrosion)

IT 1314-23-4, Zirconia, uses 1344-28-1,
Aluminum oxide, uses 7758-23-8, Calcium biphosphate
 10043-83-1, Magnesium phosphate 13463-67-7, **Titania**,
 uses 13530-50-2, Aluminum primary phosphate 13598-37-3
 14154-09-7, Manganese phosphate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (prepn. of resin-coated **galvanized** steel plates with good
adhesion and anticorrosion)

IT 7631-86-9, Silica, uses
 RL: MOA (**Modifier or additive use**); TEM (Technical or engineered
 material use); USES (Uses)
 (prepn. of resin-coated **galvanized** steel plates with good
adhesion and anticorrosion)

RN 7631-86-9 HCPLUS
 CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)

O—Si—O

IT 1314-23-4, Zirconia, uses 1344-28-1,
Aluminum oxide, uses 13463-67-7,
Titania, uses 13598-37-3
 RL: TEM (Technical or engineered material use); USES (Uses)
 (prepn. of resin-coated **galvanized** steel plates with good
adhesion and anticorrosion)

RN 1314-23-4 HCPLUS
 CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)

O—Zr—O

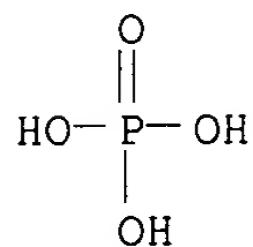
RN 1344-28-1 HCPLUS
 CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 13463-67-7 HCPLUS
 CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)

O—Ti—O

RN 13598-37-3 HCPLUS
 CN Phosphoric acid, zinc salt (2:1) (8CI, 9CI) (CA INDEX NAME)



1/2 Zn

L65 ANSWER 22 OF 89 HCAPLUS COPYRIGHT 2002 ACS
 AN 2000:300439 HCAPLUS
 DN 132:335885
 TI Metal sheet having chromium-free matte coating with good resistance to corrosion and acid
 IN Tanaka, Shoichi; Nakano, Takashi
 PA Kansai Paint Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 11 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B05D005-06
 ICS B32B015-08; C09D005-00; C09D167-00
 CC 42-10 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 55, 56
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000126677	A2	20000509	JP 1998-305231	19981027

AB The sheet has (A) a primer layer (glass transition temp. 40-125.degree.) contg. 7-60% pigments chosen from Cr-free anticorrosive pigments and **silica** microparticles showing oil absorption 30-200 mL/100 g and pore vol. 0.05-1.2 mL/g and (B) a wrinkled matte topcoat. A Zn-Al coated steel sheet was chromated, coated with a primer contg. Vylon EP 2940 (epoxy-modified polyester) 75, Ti white 30, Al tripolyphosphate 10, Sylisia 740 50, Cymel 303 25, and Nacure 5225 0.5 part, and topcoated with KP Color 1540NM Blue to give a test piece showing good processability, coating **adhesion**, and resistance to corrosion, boiling **water**, and acid.
 ST metal sheet matte coating corrosion resistance; acid resistance matte coating metal sheet; steel sheet primer epoxy polyester pigment; chromium free pigment primer metal sheet
 IT Coating materials
 (acid-resistant; metal sheet having Cr-free matte coating with good corrosion and acid resistance)
 IT Coating materials
 (anticorrosive; metal sheet having Cr-free matte coating with good corrosion and acid resistance)
 IT Polyesters, uses
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
 (hydroxy-contg., primers; metal sheet having Cr-free matte coating with good corrosion and acid resistance)
 IT Coating materials
 (matte; metal sheet having Cr-free matte coating with good corrosion and acid resistance)
 IT Primers (paints)

(metal sheet having Cr-free matte coating with good corrosion and acid resistance)

IT **Galvanized steel**
 Metals, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (metal sheet having Cr-free matte coating with good corrosion and acid resistance)

IT **Silica gel, uses**
 RL: MOA (Modifier or additive use); USES (Uses)
 (pigments in primers, Sylysia 740; metal sheet having Cr-free matte coating with good corrosion and acid resistance)

IT Corrosion inhibitors
 (pigments, in primers; metal sheet having Cr-free matte coating with good corrosion and acid resistance)

IT Epoxy resins, uses
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
 (primers; metal sheet having Cr-free matte coating with good corrosion and acid resistance)

IT **7631-86-9, Silica, uses**
 RL: MOA (Modifier or additive use); USES (Uses)
 (Mizukasil P 766, pigment in primers; metal sheet having Cr-free matte coating with good corrosion and acid resistance)

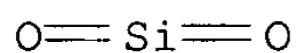
IT **7779-90-0, Zinc phosphate 15099-32-8,**
 Aluminum phosphite 29196-72-3, Aluminum tripolyphosphate 237762-16-2,
 Shieldex C 303
 RL: MOA (Modifier or additive use); USES (Uses)
 (anticorrosive pigment in primers; metal sheet having Cr-free matte coating with good corrosion and acid resistance)

IT 7429-90-5, Aluminum, uses 12597-69-2, Steel, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (metal sheet having Cr-free matte coating with good corrosion and acid resistance)

IT 143186-46-3, Cymel 303-Vylon 29CS copolymer 237743-49-6 237743-50-9
 237762-17-3 237762-18-4 267230-04-6
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
 (primer; metal sheet having Cr-free matte coating with good corrosion and acid resistance)

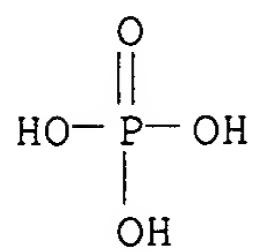
IT **7631-86-9, Silica, uses**
 RL: MOA (Modifier or additive use); USES (Uses)
 (Mizukasil P 766, pigment in primers; metal sheet having Cr-free matte coating with good corrosion and acid resistance)

RN 7631-86-9 HCPLUS
 CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



IT **7779-90-0, Zinc phosphate**
 RL: MOA (Modifier or additive use); USES (Uses)
 (anticorrosive pigment in primers; metal sheet having Cr-free matte coating with good corrosion and acid resistance)

RN 7779-90-0 HCPLUS
 CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 23 OF 89 HCAPLUS COPYRIGHT 2002 ACS
 AN 2000:247305 HCAPLUS
 DN 132:295206
 TI Chromium-free pre-coated metal plates with high coating **adhesion**
 and corrosion resistance
 IN Furukawa, Hiroyasu; Takahashi, Akira; Ueda, Kohei; Nomura, Hiromasa;
 Kanai, Hiroshi
 PA Nippon Steel Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 26 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B05D007-14
 ICS C09D175-04; C23F011-00; C08G018-80
 CC 42-10 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 55
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000107686	A2	20000418	JP 1998-281199	19981002
AB	Title plates consist of metal plates, silane coupler-contg. aq. resin primers, bottom coatings, and colored top coatings in which the bottom coatings prepnd. from compns. contg. (A) .gtoreq.3 functional group-contg. polyester-polyols, secondary OH-contg. epoxy resin/lactone or alkylene oxide adducts, and blocked polyisocyanates or NCO-terminated prepolymers and (B) compds. releasng PO4-3 and compds. releasing VO4-3 ions in the presence of water and O. A galvanized steel plate was primed with an aq. compn. contg. AP 1058, Hytec S 7024, and .gamma.- (2-aminoethyl)aminopropyltrimethoxysilane, baked, coated with a compn. contg. adipic acid (I)-hydrogenated bisphenol A-trimethylolpropane (II) copolymer, Placcel G 402, and Me Et ketoxime-blocked I-II-dipropylene glycol-ethylene glycol-1,3-bis(isocyanatomethyl)cyclohexanecopolymer, MgHPO4, Mn2O3.V2O5, and a catalyst, baked, topcoated with white FL 100HQ (polyester coating), and baked to form a plate showing good interlayer adhesion , flexural resistance (no cracks), and anticorrosion at cut and edge areas.				
ST	silane coupler aq primer steel; anticorrosion coating adhesion steel; polyester polyol epoxy resin adduct polyisocyanate coating steel				
IT	Coupling agents (Cr-free precoated metal plates from aq. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)				
IT	Coating materials (anticorrosive; Cr-free precoated metal plates from aq. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)				
IT	Polyurethanes, uses				

- RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (epoxy-polyester-, bottom coatings; Cr-free precoated metal plates from aq. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)
- IT Polyesters, uses
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (epoxy-polyurethane-, bottom coatings; Cr-free precoated metal plates from aq. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)
- IT Acrylic polymers, uses
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (olefin-, primer; Cr-free precoated metal plates from aq. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)
- IT Corrosion inhibitors
 (pigments; Cr-free precoated metal plates from aq. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)
- IT Epoxy resins, uses
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (polyester-polyurethane-, bottom coatings; Cr-free precoated metal plates from aq. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)
- IT Epoxy resins, uses
 Polyurethanes, uses
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (primer; Cr-free precoated metal plates from aq. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)
- IT Polyesters, uses
 RL: TEM (Technical or engineered material use); USES (Uses) (topcoats; Cr-free precoated metal plates from aq. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)
- IT 1305-62-0, Calcium hydroxide, uses 1305-78-8, Calcium oxide, uses 1310-65-2, Lithium hydroxide 13701-61-6
 RL: MOA (Modifier or additive use); USES (Uses) (P and V composite modifiers, anticorrosive pigments; Cr-free precoated metal plates from aq. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)
- IT 1314-56-3, Phosphorus pentaoxide, uses 1314-62-1, Vanadium oxide (V2O5), uses 2466-09-3, Pyrophosphoric acid 7664-38-2, Orthophosphoric acid, uses 7757-86-0, Magnesium hydrogenphosphate 7757-87-1, Trimagnesium diphosphate 7757-93-9, Calcium hydrogenphosphate 7758-23-8, Calcium bis(dihydrogen phosphate) 7758-87-4, TriCalcium diphosphate 7779-90-0, Zinc phosphate 10343-62-1, Metaphosphoric acid 13573-13-2, Magnesium vanadium oxide (MgV2O6) 14986-94-8, Manganese vanadium oxide (MnV2O6) 15469-60-0, Vanadium zinc oxide (V2Zn3O8) 15607-56-4, Cobalt vanadium oxide (CoV2O6) 53801-86-8, Calcium metaphosphate 138882-01-6, Manganese vanadium oxide (MnVO4) 154662-00-7, Calcium vanadium oxide (Ca0.5V03) 256377-18-1, Calcium vanadium oxide (Ca1.5V04) 264148-25-6
 RL: MOA (Modifier or additive use); USES (Uses) (anticorrosive pigments; Cr-free precoated metal plates from aq. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)
- IT 264148-15-4P, Adipic acid-1,3-bis(isocyanatomethyl)cyclohexane-dipropylene glycol-ethylene glycol-hydrogenated bisphenol A-Placcel G

402-trimethylolpropane copolymer 264148-16-5P, Adipic acid-1,3-bis(isocyanatomethyl)cyclohexane-dimethyl isophthalate-dipropylene glycol-ethylene glycol-1,6-hexanediol-Placcel G
 402-trimethylolpropane copolymer 264148-17-6P, Adipic acid-.alpha.,.omega.-diisocyanato-1,3-dimethylbenzene-dimethyl isophthalate-dipropylene glycol-ethylene glycol-1,6-hexanediol-Placcel G
 402-trimethylolpropane copolymer 264148-18-7P, Dimethyl isophthalate-1,6-hexanediol-Placcel G 402-trimethylolpropane-Takenate D 160N copolymer 264148-19-8P 264148-20-1P 264148-21-2P, Bis(2-hydroxyethyl) terephthalate-Placcel G 402-sebacic acid-.alpha.,.alpha.,.alpha.-tetramethyl-m-xylylenediiisocyanate-trimethylolpropane copolymer 264148-22-3P 264148-23-4P 264148-24-5P, Adipic acid-3-methyl-1,5-pentanediol-Placcel G 402-succinic acid-trimethylolpropane-Takenate D 160N copolymer
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (bottom coatings; Cr-free precoated metal plates from **aq.**
 primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

IT 75-79-6, Methyltrichlorosilane 1760-24-3 4420-74-0
 RL: MOA (**Modifier or additive use**); USES (Uses)
 (coupler; Cr-free precoated metal plates from **aq.** primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

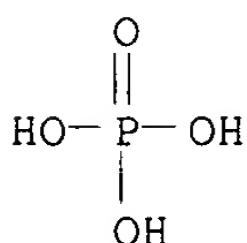
IT 1314-34-7, Vanadium oxide (V2O3)
 RL: MOA (**Modifier or additive use**); USES (Uses)
 (mixt., ant corrosive pigments; Cr-free precoated metal plates from **aq.** primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

IT 175832-28-7, Bon-Tighter HUX 320 204529-09-9, Polysol 8500 264148-14-3
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
 (primer; Cr-free precoated metal plates from **aq.** primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

IT 264189-52-8, FL 100HQ
 RL: TEM (Technical or engineered material use); USES (Uses)
 (topcoats; Cr-free precoated metal plates from **aq.** primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

IT 7779-90-0, Zinc phosphate
 RL: MOA (**Modifier or additive use**); USES (Uses)
 (anticorrosive pigments; Cr-free precoated metal plates from **aq.** primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

RN 7779-90-0 HCPLUS
 CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 24 OF 89 HCPLUS COPYRIGHT 2002 ACS
 AN 2000:180957 HCPLUS

KATHLEEN FULLER EIC 1700/LAW LIBRARY 308-4290

DN 132:225512
 TI Zinc alloy-coated steel sheets with excellent heat resistance,
 heating-discoloration resistance, and corrosion resistance
 IN Ishizuka, Kiyokazu
 PA Nippon Steel Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 5 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B05D007-14
 ICS B32B015-08
 CC 55-6 (Ferrous Metals and Alloys)
 Section cross-reference(s): 73
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000079370	A2	20000321	JP 1998-253395	19980908

AB The steel sheets have a 1st coating of a Zn alloy and 2-2 g/m² 2nd coating
 prep'd. by application of an **aq.** soln. contg. 10-100 parts
 colloidal **silica** to 100 parts Mg(H₂PO₄)₂ and drying of it. The
 application soln. optionally contains 5-20 parts **aq.** resin
 (e.g., nonionic emulsion or dispersion). The steel sheets may have a
 color layer (e.g., by blackening treatment or **Zn**
 phosphate-type chem. conversion treatment) between the 1st and 2nd
 coatings. Harmful Cr (VI) is not used in coating materials and process.
 The steel sheets are esp. useful for shrink bands for cathode-ray tubes or
 stoves.
 ST zinc alloy coated steel sheet heat corrosion resistant; magnesium
 biphosphate colloidal **silica** coating steel; cathode ray tube
 shrink band steel; stove zinc alloy coated steel sheet
 IT Coating materials
 (anticorrosive, heat-resistant; zinc alloy-coated steel sheets with
 inorg. top coating for excellent heat resistance and corrosion
 resistance)
 IT Polymers, uses
 RL: MOA (**Modifier or additive use**); USES (Uses)
 (**aq.**, top coatings contg.; zinc alloy-coated steel sheets
 with inorg. top coating for excellent heat resistance and corrosion
 resistance)
 IT Coating process
 (blackening, for color interlayer; zinc alloy-coated steel sheets with
 inorg. top coating for excellent heat resistance and corrosion
 resistance)
 IT Coating process
 (**phosphating**, for color interlayer; **zinc**
 alloy-coated steel sheets with inorg. top coating for excellent heat
 resistance and corrosion resistance)
 IT Cathode ray tubes
 (shrink bands; zinc alloy-coated steel sheets with excellent heat
 resistance and corrosion resistance for shrink bands)
 IT Stoves (appliances)
 (zinc alloy-coated steel sheets with excellent heat resistance and
 corrosion resistance for stoves)
 IT **Galvanized** steel
 RL: PEP (Physical, engineering or chemical process); TEM (Technical or
 engineered material use); PROC (Process); USES (Uses)
 (zinc alloy-coated steel sheets with inorg. top coating for excellent
 heat resistance and corrosion resistance)
 IT Zinc alloy, base
 RL: TEM (Technical or engineered material use); USES (Uses)

(coatings; zinc alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)

IT 52360-06-2
 RL: TEM (Technical or engineered material use); USES (Uses)
 (coatings; zinc alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)

IT 7631-86-9, Silica, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (colloidal, top coating component; zinc alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)

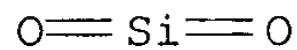
IT 13092-66-5, Magnesium biphosphate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (top coating component; zinc alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)

IT 9002-88-4, Polyethylene 9010-77-9, Acrylic acid-ethylene copolymer
 RL: MOA (Modifier or additive use); USES (Uses)
 (top coatings contg.; zinc alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)

IT 12597-69-2, Steel, processes
 RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (zinc alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)

IT 7631-86-9, Silica, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (colloidal, top coating component; zinc alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)

RN 7631-86-9 HCPLUS
 CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 25 OF 89 HCPLUS COPYRIGHT 2002 ACS
 AN 2000:19163 HCPLUS
 DN 132:67160
 TI Anticorrosive precoated steel sheet free from chromium ion
 IN Yoshimi, Naoto; Ando, Satoshi; Sagiymama, Masaru
 PA Nippon Kokan Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 20 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B05D007-14
 ICS C23C022-00; C23C022-07
 CC 55-6 (Ferrous Metals and Alloys)
 Section cross-reference(s): 42
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
	-----	---	-----	-----	-----	
PI	JP 2000000519	A2	20000107	JP 1998-181494	19980612	
AB	The sheet consists of a galvanized steel substrate or steel substrate plated with Al-based material and a surface layer made of a 99/1-1/99 mixt. of a water-dispersing or water-sol. resin and a chelating agent comprising a polymer matrix and a					

chelate-forming group. The sheet prep'd. by a process without chromating process shows good corrosion inhibition despite the absence of Cr⁶⁺.

ST anticorrosive precoated steel sheet chromium ion; **galvanized** steel sheet anticorrosive resin coating; aluminum plated steel sheet anticorrosive coating; chelating agent polymer anticorrosive coating

IT Polyurethanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(acrylic; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Polyphosphoric acids
RL: **MOA (Modifier or additive use)**; USES (Uses)
(aluminum salts, lubricants; in anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Chelating agents
Electroplating
(anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT **Galvanized** steel
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Acrylic polymers, uses
Epoxy resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Coating materials
(anticorrosive; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT **Phenolic** resins, uses
Polyamines
Polyoxyalkylenes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(chelating group-substituted; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Molybdates
Phosphites
Polyphosphates
RL: **MOA (Modifier or additive use)**; USES (Uses)
(corrosion inhibitors; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Amides, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(fatty, lubricants; in anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Corrosion inhibitors
Lubricants
(in anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Soaps
RL: **MOA (Modifier or additive use)**; USES (Uses)
(lubricants; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Fluoropolymers, uses
Hydrocarbon waxes, uses

Polyoxyalkylenes, uses
 Sulfides, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (lubricants; in anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Phosphates, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (molybdophosphate, corrosion inhibitors; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Heteropoly acids
 RL: MOA (Modifier or additive use); USES (Uses)
 (molybdophosphates, corrosion inhibitors; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Alkali metals, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (sulfates, lubricants; in anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Coating materials
 (water-thinned; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Polyolefins
 RL: MOA (Modifier or additive use); USES (Uses)
 (wax, lubricants; in anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT 9002-86-2D, PVC, chelating group-substituted 9002-88-4D, Polyethylene, chelating group-substituted 9002-89-5D, Poly(vinyl alcohol), chelating group-substituted 9002-98-6D, Aziridine homopolymer, chelating group-substituted 9003-70-7D, Divinylbenzene-styrene copolymer, chelating group-substituted 25322-68-3D, Polyethylene glycol, chelating group-substituted 75497-02-8, Voncoat R 3360 96352-52-2, Finetex ES 675 97794-61-1, Voncoat SFC 55 102641-36-1, Finetex ES 850 178966-33-1, Adeka Bon-tighter HUX 401 253131-15-6, Voncoat R 3385 253131-41-8, Voncoat CG 5060 253131-78-1, Adeka EM 0433
 RL: TEM (Technical or engineered material use); USES (Uses)
 (anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT 83-86-3, Phytic acid 7631-86-9, Silica, uses
 7664-38-2D, Phosphoric acid, esters 13598-36-2, Phosphonic acid
 RL: MOA (Modifier or additive use); USES (Uses)
 (corrosion inhibitors; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT 7779-90-0, Zinc phosphate 7782-42-5,
 Graphite, uses 9002-84-0, Teflon MP 1100 10043-11-5, Boron nitride (BN), uses 10103-46-5, Calcium phosphate 11113-63-6, Graphite fluoride 14306-25-3, Sodium phytate 14332-59-3, Zinc phosphite 35046-95-8, Magnesium phytate 37164-27-5, Manganese phosphite 37367-98-9, Calcium molybdate 56083-79-5 59246-95-6, Zinc phytate 61583-60-6, Zinc molybdate 65526-82-1, Magnesium zinc phosphite 106145-21-5 130638-76-5, Aluminum phosphomolybdate 225663-39-8 225663-96-7
 RL: MOA (Modifier or additive use); USES (Uses)
 (lubricants; in anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

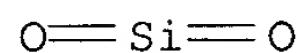
IT 12597-69-2, Steel, uses

RL: TEM (Technical or engineered material use); USES (Uses)
 (sheet; anticorrosive precoated steel sheet free from chromium ion
 having polymer surface coating contg. polymeric chelating agents)

IT 7440-66-6, Zinc, uses 12609-49-3 52308-11-9 52360-06-2 58465-32-0
 96539-23-0 115253-85-5 142240-64-0, Aluminum 5, magnesium 0.5, zinc 94
 RL: TEM (Technical or engineered material use); USES (Uses)
 (steel sheet coated with; anticorrosive precoated steel sheet free from
 chromium ion having polymer surface coating contg. polymeric chelating
 agents)

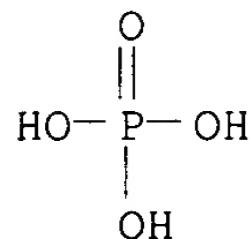
IT 7631-86-9, Silica, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (corrosion inhibitors; anticorrosive precoated steel sheet free from
 chromium ion having polymer surface coating contg. polymeric chelating
 agents)

RN 7631-86-9 HCPLUS
 CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



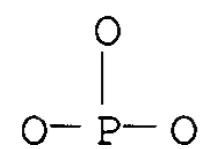
IT 7779-90-0, Zinc phosphate 14332-59-3
 , Zinc phosphite
 RL: MOA (Modifier or additive use); USES (Uses)
 (lubricants; in anticorrosive precoated steel sheet free from chromium
 ion having polymer surface coating contg. polymeric chelating agents)

RN 7779-90-0 HCPLUS
 CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

RN 14332-59-3 HCPLUS
 CN Phosphonic acid, zinc salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Zn

*** FRAGMENT DIAGRAM IS INCOMPLETE ***

L65 ANSWER 26 OF 89 METADEX COPYRIGHT 2002 CSA
 AN 2000(9):57-1474 METADEX
 TI Powder coated hot-dip galvanized steel in corrosive environment.
 AU Bjordal, M. (SINTEF Materials Technology); Axelsen, S.B. (SINTEF Materials

Technology); Knudsen, O.O. (SINTEF Materials Technology)
 SO Assessing the Future of Coating Work (2000), 121-130, Numerical Data,
 Graphs, Photomicrographs, 10 ref.
 Protective Coatings Europe. 2100 Wharton Street, Suite 310, Pittsburgh, PA
 15203, USA
 Conference: PCE 2000 Conference and Exhibition, Genoa, Italy, 8-10 Mar.
 2000

DT Conference Article
 CY United States
 LA English

AB Duplex coating systems, with hot-dip zinc in combination with powder coating, has been exposed in accelerated corrosion tests and in field tests to document their ability to protect steel in corrosive environment. Two thick powder coatings applied directly on phosphated steel was also included as well as three systems with wet coatings either on steel or hot-dip galvanized steel. The powder coatings were applied industrially, thus representing actual quality on such coatings. Coated panels were exposed in two different cyclic exposure tests, one test submerged in distilled water, and mechanical testing. Panels are also being exposed on test sites in marine atmosphere and industrial atmosphere. The tests show that it is possible to obtain good corrosion protection of steel in corrosive environment with 90 μm zinc, phosphate and 75 μm polyester powder coating on top. The results indicate that polyester powder with primide hardener performs just as well in a duplex system as polyester with TGIC hardener. There were large differences between 'identical' systems applied by different companies. The process step being most important to obtain high quality seems to be pre-treatment of the zinc surface before powder coating. It is crucial that the phosphate layer covers the entire surface and has a fine platelet structure. The surface must be free from contamination before applying the powder coating. The corrosion protective properties of the phosphate layer have been demonstrated.

CC 57 Finishing; 35 Corrosion
 CT Conference Paper; Galvanized steels: Coating; Hot dip galvanizing;
 Phosphating (coating); Powder coating; Polyesters: Coatings; Powder
 coatings: Corrosion; Organic coatings: Corrosion; Corrosion resistance:
 Coating effects

L65 ANSWER 27 OF 89 HCAPLUS COPYRIGHT 2002 ACS
 AN 1999:728205 HCAPLUS
 DN 131:340087
 TI Surface-treated steel sheets showing high corrosion resistance and excellent workability, and preparation thereof
 IN Ishizuka, Kiyokazu; Shindo, Hidetoshi
 PA Nippon Steel Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C23C022-22
 CC 55-6 (Ferrous **Metals** and Alloys)
 Section cross-reference(s): 56

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	-----	-----	-----	-----
PI JP 11315386	A2	19991116	JP 1998-124559	19980507
AB	The steel sheets comprise, successively formed, Zn (alloy) platings, and 0.1-2.0 g/m ² of water-slightly sol. amorphous inorg. films contg. .gtoreq.1% of Mg. Zn phosphate conversion coating films may be formed between the steels and the inorg. films, whereas the total			

thickness of the conversion coating films and the inorg. films is 0.1-2.0 g/m². In prepn. of the steel sheets, the inorg. films are prep'd. by applying aq. solns. contg. magnesium dihydrogen phosphate and .gt;eq.1% (to solids) of Mg on the steels, baking at 150-250.degree., and immediately quenching in water. The coatings are free from toxic Cr.

ST steel anticorrosive coating inorg amorphous film; zinc plated steel anticorrosive amorphous coating; phosphate zinc conversion coating steel anticorrosive

IT Films
(amorphous, inorg.; prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

IT Coating materials
(anticorrosive, amorphous inorg.; prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

IT Silica gel, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(coating soln. component; in prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

IT Coating process
(conversion; prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

IT Galvanized steel
RL: TEM (Technical or engineered material use); USES (Uses)
(electrogalvanized; prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

IT Galvanized steel
RL: TEM (Technical or engineered material use); USES (Uses)
(prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

IT 7664-38-2, Phosphoric acid, uses 13092-66-5, Magnesium dihydrogen phosphate
RL: TEM (Technical or engineered material use); USES (Uses)
(coating soln. component; in prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

IT 7779-90-0, Zinc phosphate
RL: TEM (Technical or engineered material use); USES (Uses)
(conversion films; prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

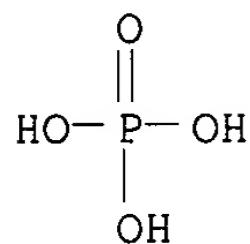
IT 12597-69-2, Steel, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

IT 1314-23-4, Zirconia, uses 1344-28-1,
Aluminum oxide (Al₂O₃), uses
RL: TEM (Technical or engineered material use); USES (Uses)
(sol, coating soln. component; in prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

IT 7779-90-0, Zinc phosphate
RL: TEM (Technical or engineered material use); USES (Uses)
(conversion films; prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

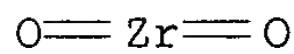
RN 7779-90-0 HCPLUS

CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

IT 1314-23-4, Zirconia, uses 1344-28-1,
Aluminum oxide (Al₂O₃), uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (sol, coating soln. component; in prepn. of steel sheets successively
 coated with Zn (alloys) and anticorrosive amorphous inorg. films contg.
 Mg)
 RN 1314-23-4 HCAPLUS
 CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)



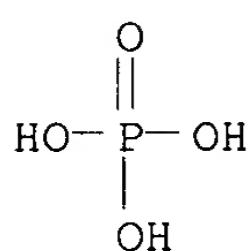
RN 1344-28-1 HCAPLUS
 CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L65 ANSWER 28 OF 89 HCAPLUS COPYRIGHT 2002 ACS
 AN 1999:699394 HCAPLUS
 DN 131:340081
 TI **Galvanized** steel sheet with multilayer coating for painting
 having high corrosion resistance and resistance to secondary
 adhesion of water
 IN Yamaji, Takafumi; Matsuzaki, Akira; Yamashita, Masaaki
 PA Nippon Kokan Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C23C028-00
 ICS C23C002-06; C23C022-07; C23C022-30
 CC 55-6 (Ferrous Metals and Alloys)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11302870	A2	19991102	JP 1998-109793	19980420
AB	The conversion coating layer in a multilayer coating on a galvanized steel sheet contains a Zn ₃ (PO ₄) ₂ .cntdot.4H ₂ O layer at 0.1-1.5 g/m ² and a chromate layer on top of it. The chromate layer contains fumed SiO ₂ with a primary particle size of 10-14 nm and 5-9 nm and a chromic acid compd. The SiO ₂ /Cr ratio in the chromate layer is .gtoreq.3 and <6, and the content of Cr is 5-55 mg/m ² .				
ST	fumed silica chromic acid chromate zinc phosphate coating steel; galvanized steel multilayer coating corrosion chromating				
IT	Coating materials (anticorrosive; galvanized steel sheet with multilayer				

- coating for painting having high corrosion resistance and resistance to secondary adhesion of water)
- IT Coating process
 (conversion; galvanized steel sheet with multilayer coating for painting having high corrosion resistance and resistance to secondary adhesion of water)
- IT Galvanized steel
 RL: TEM (Technical or engineered material use); USES (Uses)
 (galvanized steel sheet with multilayer coating for painting having high corrosion resistance and resistance to secondary adhesion of water)
- IT Coating materials
 (multilayer; galvanized steel sheet with multilayer coating for painting having high corrosion resistance and resistance to secondary adhesion of water)
- IT 7543-51-3, Zinc phosphate tetrahydrate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (coating contg.; galvanized steel sheet with multilayer coating for painting having high corrosion resistance and resistance to secondary adhesion of water)
- IT 7631-86-9, Fumed silica, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (colloidal; in chromate layer in galvanized steel sheet with multilayer coating for painting having high corrosion resistance and resistance to secondary adhesion of water)
- IT 7738-94-5D, Chromic acid (H₂CrO₄), compds.
 RL: TEM (Technical or engineered material use); USES (Uses)
 (in chromate layer in galvanized steel sheet with multilayer coating for painting having high corrosion resistance and resistance to secondary adhesion of water)
- IT 7543-51-3, Zinc phosphate tetrahydrate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (coating contg.; galvanized steel sheet with multilayer coating for painting having high corrosion resistance and resistance to secondary adhesion of water)
- RN 7543-51-3 HCPLUS
- CN Phosphoric acid, zinc salt (2:3), tetrahydrate (8CI, 9CI) (CA INDEX NAME)



2 H₂O

3/2 Zn

- IT 7631-86-9, Fumed silica, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (colloidal; in chromate layer in galvanized steel sheet with multilayer coating for painting having high corrosion resistance and resistance to secondary adhesion of water)

RN 7631-86-9 HCPLUS
 CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

L65 ANSWER 29 OF 89 HCPLUS COPYRIGHT 2002 ACS
 AN 1999:310996 HCPLUS
 DN 131:20322
 TI Chromate film-free anticorrosive steel panels
 IN Yoshimi, Naoto; Sasaki, Kenichi; Sugimoto, Yoshiharu; Sagiyama, Masaru
 PA Nippon Kokan Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 18 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B05D007-14
 ICS C23C022-00; C23C022-07
 CC 42-10 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 55
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11128830	A2	19990518	JP 1997-314281	19971030
AB	Title panels are prep'd. by forming phosphoric acid- and/or phosphate-contg. polymeric chelating agent-based films on Zn- or Al-plated steel panels. A galvanized steel panel was coated with an aq. compn. contg. iminomethylenephosphoric acid group-contg. polyethylene to a 0.5-.mu.m thickness and dried at 150.degree. to form a film with good adhesion to the panel and anticorrosion (JIS Z 2371) over 48 h.				
ST	anticorrosion phosphato polymeric chelating agent coating steel				
IT	Sulfates, uses RL: MOA (Modifier or additive use); POF (Polymer in formulation); USES (Uses) (alkali metal, lubricants; phosphato polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)				
IT	Polyphosphoric acids RL: MOA (Modifier or additive use); POF (Polymer in formulation); USES (Uses) (aluminum salts, corrosion inhibitor; phosphato polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)				
IT	Coating materials (anticorrosive; phosphato polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)				
IT	Molybdates Phosphates, uses Phosphites RL: MOA (Modifier or additive use); POF (Polymer in formulation); USES (Uses) (corrosion inhibitor; phosphato polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)				
IT	Amides, uses RL: MOA (Modifier or additive use); POF (Polymer in formulation); USES (Uses) (fatty, lubricants; phosphato polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)				

- IT Polyoxyalkylenes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(iminomethylenephosphoric acid group-contg.; **phosphato**
polymeric chelating agent-based coatings on Zn- or Al-plated steel for
anticorrosion)
- IT Fluoropolymers, uses
Polyoxyalkylenes, uses
Soaps
Sulfides, uses
RL: MOA (Modifier or additive use); POF (Polymer in
formulation); USES (Uses)
(lubricants; **phosphato** polymeric chelating agent-based
coatings on Zn- or Al-plated steel for antcorrosion)
- IT Acrylic polymers, uses
Epoxy resins, uses
Phenolic resins, uses
Polyamines
RL: TEM (Technical or engineered material use); USES (Uses)
(**phosphato** group-contg.; **phosphato** polymeric
chelating agent-based coatings on Zn- or Al-plated steel for
anticorrosion)
- IT Chelating agents
Corrosion inhibitors
(**phosphato** polymeric chelating agent-based coatings on Zn- or
Al-plated steel for antcorrosion)
- IT **Galvanized** steel
RL: MSC (Miscellaneous)
(**phosphato** polymeric chelating agent-based coatings on Zn- or
Al-plated steel for antcorrosion)
- IT Vinyl compounds, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymers, **phosphato** group-contg.; **phosphato**
polymeric chelating agent-based coatings on Zn- or Al-plated steel for
anticorrosion)
- IT Lubricants
(solid; **phosphato** polymeric chelating agent-based coatings on
Zn- or Al-plated steel for antcorrosion)
- IT 83-86-3, Phytic acid 7779-90-0, Zinc phosphate
10103-46-5, Calcium **phosphate** 13598-36-2, Phosphonic acid
14306-25-3, Sodium phytate 14332-25-3 **14332-59-3, Zinc**
phosphite 35046-95-8, Magnesium phytate 37164-27-5, Manganese
phosphite 37367-98-9, Calcium molybdate 56083-79-5, Stannous phytate
59246-95-6, Zinc phytate 61583-60-6, Zinc molybdate
65526-82-1 107534-28-1 122493-85-0, Aluminum molybdenum oxide
phosphate (AlMn1O26(PO4)) 161116-19-4 225663-96-7
RL: MOA (Modifier or additive use); POF (Polymer in
formulation); USES (Uses)
(corrosion inhibitor; **phosphato** polymeric chelating
agent-based coatings on Zn- or Al-plated steel for antcorrosion)
- IT 7631-86-9, Silica, miscellaneous
RL: MSC (Miscellaneous)
(in zinc platings; **phosphato** polymeric chelating
agent-based coatings on Zn- or Al-plated steel for antcorrosion)
- IT 9002-88-4, Luvax 1151
RL: MOA (Modifier or additive use); POF (Polymer in
formulation); USES (Uses)
(lubricants, Luvax 1151, Ceridust 3620; **phosphato** polymeric
chelating agent-based coatings on Zn- or Al-plated steel for
anticorrosion)
- IT 1317-33-5, Molybdenum disulfide, uses 7782-42-5, Graphite, uses

9002-84-0 10043-11-5, Boron nitride, uses 11113-63-6, Graphite fluoride
RL: MOA (Modifier or additive use); POF (Polymer in formulation); USES (Uses)
 (lubricants; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)

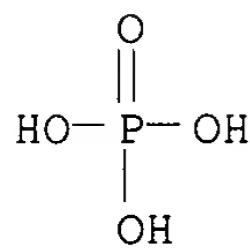
IT 11100-95-1 37345-61-2 52308-11-9 52360-06-2 96539-23-0
 99653-45-9 118889-49-9 119412-76-9
RL: MSC (Miscellaneous)
 (**phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)

IT 9002-86-2D, PVC, iminomethylenephosphoric acid group-contg. 9002-88-4D, Polyethylene, iminomethylenephosphoric acid group-contg. 9002-89-5D, Poly(vinyl alcohol), iminomethylenephosphoric acid group-contg. 9002-98-6D, iminomethylenephosphoric acid group-contg. 9003-01-4D, Poly(acrylic acid), imino or aminoalkylenephosphoric acid group-contg. 9003-70-7D, Divinylbenzene-styrene copolymer, iminomethylenephosphoric acid group-contg. 9005-25-8D, Starch, iminomethylenephosphoric acid group-contg. 25322-68-3D, Poly(ethylene glycol), iminomethylenephosphoric acid group-contg. 26913-06-4D, Poly[imino(1,2-ethanediyl)], iminomethylenephosphoric acid group-contg.
RL: TEM (Technical or engineered material use); USES (Uses)
 (**phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)

IT 12597-69-2, Steel, miscellaneous
RL: MSC (Miscellaneous)
 (plated; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)

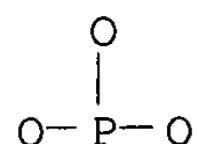
IT 7779-90-0, Zinc phosphate 14332-59-3
 , Zinc phosphite
RL: MOA (Modifier or additive use); POF (Polymer in formulation); USES (Uses)
 (corrosion inhibitor; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)

RN 7779-90-0 HCPLUS
 CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

RN 14332-59-3 HCPLUS
 CN Phosphonic acid, zinc salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Zn

*** FRAGMENT DIAGRAM IS INCOMPLETE ***

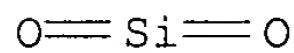
IT 7631-86-9, Silica, miscellaneous

RL: MSC (Miscellaneous)

(in zinc platings; phosphato polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)

RN 7631-86-9 HCPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 30 OF 89 HCPLUS COPYRIGHT 2002 ACS

AN 1997:619116 HCPLUS

DN 127:309878

TI Chromium-free anticorrosive finishing composition for metal surface

IN Odajima, Toshio; Shimizu, Yoshiaki

PA Toyobo Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C23C022-07

ICS C23C028-00

CC 55-6 (Ferrous Metals and Alloys)

Section cross-reference(s): 42

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09241856	A2	19970916	JP 1996-46260	19960304

AB The compn. contg. an OH-contg. org. resin, H₂PO₃, and a phosphate-type compd. contg. Cu, Co, Fe, Mn, Sn, V, Mg, Ba, Al, Ca, Sr, Nb, Y, and/or Zn forms a film on the metal surface, which shows prevention of peeling off after impregnated in boiling water for 30 min in case of applying on galvanized steel plate. The environment-friendly compn. shows improved adhesion to metal.

ST chromium free anticorrosive coating metal substrate; hydroxy contg org resin coating metal; phosphoric acid anticorrosive coating metal substrate; metal phosphate chromium free coating metal

IT Anticorrosive coatings

(chromium-free anticorrosive surface finishing compns. contg. hydroxy-contg. resin, phosphoric acid, and metal phosphate for metal surface)

IT Galvanized steel

RL: MSC (Miscellaneous)

(plate, substrate; chromium-free anticorrosive surface finishing compns. contg. hydroxy-contg. resin, phosphoric acid, and metal

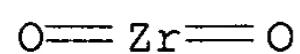
phosphate for metal surface)

IT 79-10-7DP, 2-Propenoic acid, reaction products with vinyl monomers and org. phosphorus-contg. monomer 79-41-4DP, reaction products with vinyl monomers and org. phosphorus-contg. monomer 80-62-6DP, reaction products with hydroxy-contg. vinyl monomers and org. phosphorus-contg. monomer 97-63-2DP, Ethyl methacrylate, reaction products with hydroxy-contg. vinyl monomers and org. phosphorus-contg. monomer 100-42-5DP, reaction products with hydroxy-contg. vinyl monomers and org. phosphorus-contg. monomer 106-91-2DP, reaction products with hydroxy-contg. vinyl monomers and org. phosphorus-contg. monomer 106-92-3DP, reaction products with hydroxy-contg. vinyl monomers and org. phosphorus-contg. monomer 141-32-2DP, reaction products with hydroxy-contg. vinyl monomers and org. phosphorus-contg. monomer 924-42-5DP, reaction products with hydroxy-contg. vinyl monomers and org. phosphorus-contg. monomer 2478-10-6DP, reaction products with vinyl monomers and org. phosphorus-contg. monomer 5919-74-4DP, 2,3-Dihydroxypropyl methacrylate, reaction products with vinyl monomers and org. phosphorus-contg. monomer 30585-49-0P, Butyl acrylate-2-hydroxyethyl acrylate-methacrylic acid copolymer 182439-87-8P 182439-89-0P 182439-90-3P 182439-91-4P 197454-70-9P 197454-71-0P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (chromium-free anticorrosive surface finishing compns. contg.
 hydroxy-contg. resin, phosphoric acid, and metal **phosphate**
 for metal surface)

IT 1308-38-9, Chromium oxide (Cr₂O₃), uses 1309-37-1, Iron oxide (Fe₂O₃), uses 1309-48-4, Magnesium oxide, uses 1314-23-4,
Zirconium oxide, uses 1314-60-9, Antimony oxide (Sb₂O₅) 1317-61-9, Iron oxide (Fe₃O₄), uses 1344-28-1,
Alumina, uses 7631-86-9, **Silica**, uses 7664-38-2, Phosphoric acid, uses 7757-86-0 7779-90-0,
Zinc phosphate 7784-30-7, **Aluminum phosphate** 7798-23-4, **Cupric phosphate** 10103-46-5, **Calcium phosphate** 10124-54-6, **Manganese phosphate** 13847-18-2, **Barium phosphate** 13990-54-0, **Yttrium phosphate** 14414-90-5, **Strontium phosphate** 14417-93-7, **Tin phosphate** 14542-94-0, **Vanadium phosphate** 14940-41-1, **Ferrous phosphate** 17035-62-0 17409-91-5, **Cobalt phosphate** 18282-10-5, **Tin oxide** (SnO₂)
 RL: MOA (Modifier or additive use); USES (Uses)
 (chromium-free anticorrosive surface finishing compns. contg.
 hydroxy-contg. resin, phosphoric acid, and metal **phosphate**
 for metal surface)

IT 1314-23-4, **Zirconium oxide**, uses 1344-28-1, **Alumina**, uses 7631-86-9,
Silica, uses 7779-90-0, **Zinc phosphate**
 RL: MOA (Modifier or additive use); USES (Uses)
 (chromium-free anticorrosive surface finishing compns. contg.
 hydroxy-contg. resin, phosphoric acid, and metal **phosphate**
 for metal surface)

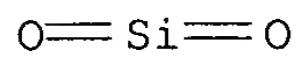
RN 1314-23-4 HCPLUS
 CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)



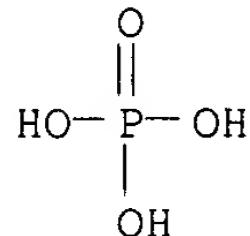
RN 1344-28-1 HCPLUS
 CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7631-86-9 HCPLUS
 CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 7779-90-0 HCPLUS
 CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 31 OF 89 HCPLUS COPYRIGHT 2002 ACS
 AN 1997:421033 HCPLUS
 DN 127:52273
 TI Coated and plated steel sheets having corrosion-resistant cutting edges
 IN Ikushima, Kenji; Imai, Kazuhito
 PA Sumitomo Metal Industries, Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 5 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B32B015-08
 ICS B32B015-08; B05D007-14; B32B027-18
 CC 42-8 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 56
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09150479	A2	19970610	JP 1995-310184	19951129
AB	The surface of plated steel sheets exhibit Cr elution from cutting edges per unit cutting edge length and hour .gtoreq.0.5-50 .mu.g/m-h and have (A) topcoatings and (B) undercoatings composed of polyesters with Tg -5.degree. to 40.degree. and av. mol. wt. .gtoreq.5000 and contg. Cr-contg. anticorrosive pigments. Thus, a galvanized steel plate was Zn phosphate-treated, coated with an undercoating contg. 8:2 a mixt. of a polyester, Cymel 370, 20% Sr chromate, and 2% SiO ₂ , baked at 210.degree., coated with a polyester topcoating contg. 40% TiO ₂ , and baked at 230.degree. to give test pieces showing Cr elution after soaking in H ₂ O or 5% NaCl soln. 0.58 .mu.g/m-h, blistering 0 mm by JIS salt spray test (SST), no cracking by 180.degree.-bending, and cross-cut adhesion after boiling in water for 2 h .gtoreq.98/100.				
ST	polyester anticorrosive pigment undercoating plated steel; strontium chromate pigment polyester coating steel				
IT	Anticorrosive coatings Topcoats (coatings) (plated steel sheets coated with polyester coatings contg.				

anticorrosive pigments and having corrosion-resistant cutting edges)

IT Aminoplasts
 RL: **MOA (Modifier or additive use); USES (Uses)**
 (plated steel sheets coated with polyester coatings contg.
 anticorrosive pigments and having corrosion-resistant cutting edges)

IT Coatings
 (undercoatings; plated steel sheets coated with polyester coatings
 contg. anticorrosive pigments and having corrosion-resistant cutting
 edges)

IT Polyesters, uses
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
 engineered material use); USES (Uses)
 (undercoatings; plated steel sheets coated with polyester coatings
 contg. anticorrosive pigments and having corrosion-resistant cutting
 edges)

IT 7631-86-9, Silica, uses 7789-06-2, Strontium chromate
 9003-08-1, Cymel 370
 RL: **MOA (Modifier or additive use); USES (Uses)**
 (plated steel sheets coated with polyester coatings contg.
 anticorrosive pigments and having corrosion-resistant cutting edges)

IT 12597-69-2, Steel, miscellaneous
 RL: MSC (Miscellaneous)
 (plated steel sheets coated with polyester coatings contg.
 anticorrosive pigments and having corrosion-resistant cutting edges)

IT 7631-86-9, Silica, uses
 RL: **MOA (Modifier or additive use); USES (Uses)**
 (plated steel sheets coated with polyester coatings contg.
 anticorrosive pigments and having corrosion-resistant cutting edges)

RN 7631-86-9 HCPLUS
 CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 32 OF 89 HCPLUS COPYRIGHT 2002 ACS
 AN 1997:257281 HCPLUS
 DN 126:239700
 TI Coating process and coated zinc (alloy)-plated steel panels therefrom
 IN Ishihara, Yoshitaka; Okumura, Yoshiaki; Kaneko, Toshio; Tsutsui, Hiroaki
 PA Nippon Paint Co Ltd, Japan
 SO Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B05D007-14
 ICS C09D005-00
 CC 42-10 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 55
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09038570	A2	19970210	JP 1995-211021	19950726
AB	In a title process involving chem. treatment, spreading with bottom coatings, and covering with top coatings, the bottom coatings contain 100 parts resins and 1-100 parts MgO to ensure an edge anticorrosion of the coated panels. A Zn alloy-plated steel panel was treated with Zn phosphate , coated with a comprn. contg. EPU 1000 90, Sumimal M 40S 10, and MgO 60 parts, baked, and top coated with a white				

compn. to form a panel with good edge anticorrosion (aq. salt spraying, 1000 h) and blister resistance (5 h in boiling water).

ST edge anticorrosion steel coating magnesium oxide; blister resistance steel coating magnesium oxide

IT Epoxy resins, uses
Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(coating binder; magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

IT Polyurethanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(epoxy, coating binder; magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

IT Anticorrosive coatings
(magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

IT Galvanized steel
RL: MSC (Miscellaneous)
(magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

IT Epoxy resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyurethane-, coating binder; magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

IT 7440-66-6, Zinc, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(alloys, platings; magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

IT 188497-53-2
RL: TEM (Technical or engineered material use); USES (Uses)
(coating binder; magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

IT 1309-42-8, Magnesium hydroxide 1309-48-4, Magnesium oxide, uses
RL: MOA (Modifier or additive use); USES (Uses)
(magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

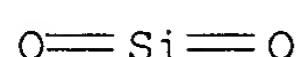
IT 37346-11-5
RL: TEM (Technical or engineered material use); USES (Uses)
(platings; magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

IT 7631-86-9, Aerosil 200, uses
RL: MOA (Modifier or additive use); USES (Uses)
(storage stability improver; magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

IT 7631-86-9, Aerosil 200, uses
RL: MOA (Modifier or additive use); USES (Uses)
(storage stability improver; magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

RN 7631-86-9 HCAPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 33 OF 89 HCAPLUS COPYRIGHT 2002 ACS
 AN 1997:553335 HCAPLUS
 DN 127:194058
 TI Resin-containing phosphate bath for chromium-free coating of metal surfaces
 IN Odashima, Hisao; Takahashi, Tomomi; Shimizu, Toshiyuki
 PA Toyo Boseki Kabushiki Kaisha, Japan
 SO Eur. Pat. Appl., 28 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 IC ICM C23C022-06
 ICS C23C022-07
 CC 56-6 (Nonferrous Metals and Alloys)
 Section cross-reference(s): 42
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 787830	A2	19970806	EP 1997-101530	19970131
	EP 787830	A3	20000405		
	R: DE, FR, GB, IT				
	JP 09208859	A2	19970812	JP 1996-16824	19960201
	JP 09241857	A2	19970916	JP 1996-47286	19960305
	US 6040054	A	20000321	US 1997-791077	19970129
PRAI	JP 1996-16824		19960201		
	JP 1996-47286		19960305		
AB	The phosphating bath for coating of metals and/or alloys contains: (a) org. resin with hydroxyl group; (b) H ₃ PO ₄ ; (c) metal ions and/or compds. with Cu, Co, Fe, Mn, Sn, V, Mg, Ba, Al, Ca, Sr, Nb, Y, and/or Zn; and optionally (d) colloids (as sol) or powders of SiO ₂ , SnO ₂ , Cr ₂ O ₃ , Fe ₂ O ₃ , Fe ₃ O ₄ , MgO, ZrO ₂ , Al ₂ O ₃ , and/or Sb ₂ O ₅ . The org. resin is typically of acrylic, epoxy, or modified-epoxy type. The aq. phosphating soln. typically contains the resin at 100 g, H ₃ PO ₄ at 2-60 g, a phosphate salt at 0.015-1.5 g-mol, and optionally the colloid or oxide powder at 3-300 g, and can be applied on a metal surface with drying for 0.1-3.0 g/m ² as a primer prior to painting. The dried phosphate coating on galvanized steel is stable after 30-min immersion in boiling-water bath. The phosphate coatings are optionally applied from the aq. resin-contg. phosphate bath as a primer, followed by a similar coating from the powder-contg. bath. Steel sheet electroplated with Zn-13.9% Ni alloy was coated for the dried (100.degree.) wt. gain of 0.75 g/m ² in the aq. bath contg. org. resin 60 g/L, H ₃ PO ₄ 15 g/L, Ba phosphate 0.8M, colloidal SiO ₂ 15 g/L, and colloidal MgO 1 g/L, using the copolymer resin contg. 2-hydroxyethyl acrylate 15, Et methacrylate 60, Bu acrylate 40, methacrylic resin 50, and acrylic resin 35 wt. parts.				
ST	phosphating bath hydroxide resin coating primer; oxide powder phosphoric acid bath primer; galvanized steel phosphating bath primer				
IT	Acrylic polymers, uses Epoxy resins, uses Polyurethanes, uses				
	RL: MOA (Modifier or additive use); USES (Uses) (coating bath with; resin-contg. aq. phosphate bath for chromium-free coating of metal surfaces)				
IT	Galvanized steel RL: PEP (Physical, engineering or chemical process); PROC (Process) (coating of, with primer; resin-contg. aq. phosphate bath for chromium-free coating of metal surfaces)				

IT Phosphating
 (primer; resin-contg. aq. phosphate bath for chromium-free coating of metal surfaces)

IT 7429-90-5D, Aluminum, salts 7439-89-6D, Iron, salts 7439-95-4D, Magnesium, salts 7439-96-5D, Manganese, salts 7440-03-1D, Niobium, salts 7440-24-6D, Strontium, salts 7440-31-5D, Tin, salts 7440-39-3D, Barium, salts 7440-48-4D, Cobalt, salts 7440-50-8D, Copper, salts 7440-62-2D, Vanadium, salts 7440-65-5D, Yttrium, salts 7440-70-2D, Calcium, salts 7664-38-2, Phosphoric acid, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (coating bath contg.; resin-contg. aq. phosphate bath for chromium-free coating of metal surfaces)

IT 7784-30-7, Aluminum phosphate 7798-23-4, Cupric phosphate 10103-46-5, Calcium phosphate 10124-54-6, Manganese phosphate 13092-66-5 13847-18-2, Barium phosphate 13990-54-0, Yttrium phosphate 14414-90-5, Strontium phosphate 14542-94-0, Vanadium phosphate 14940-41-1, Ferrous phosphate 15578-32-2, Stannous phosphate 17409-91-5, Cobalt phosphate 29766-44-7, Niobium phosphate
 RL: MOA (Modifier or additive use); USES (Uses)
 (coating bath contg.; resin-contg. phosphate bath with colloidal oxide for coating of metal surfaces)

IT 7440-66-6, Zinc, processes
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (coating, phosphating of; resin-contg. aq.
 phosphate bath for chromium-free coating of metal surfaces)

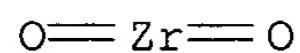
IT 1309-37-1, Iron oxide (Fe₂O₃), uses 1309-48-4, Magnesia, uses 1314-23-4, Zirconia, uses 1314-60-9, Antimony pentoxide 1317-61-9, Iron oxide (Fe₃O₄), uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 18282-10-5, Tin dioxide
 RL: MOA (Modifier or additive use); USES (Uses)
 (colloidal; resin-contg. phosphate bath with colloidal oxide for coating of metal surfaces)

IT 12597-69-2, Steel, processes
 RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (phosphating of; resin-contg. aq. phosphate bath for chromium-free coating of metal surfaces)

IT 79-10-7D, Acrylic acid, copolymers with 79-41-4D, Methacrylic acid, copolymers with 80-62-6D, Methyl methacrylate, copolymers with 100-42-5D, Styrene, copolymers with 106-91-2D, Glycidyl methacrylate, copolymers with 141-32-2D, Butyl acrylate, copolymers with
 RL: MOA (Modifier or additive use); USES (Uses)
 (resins; resin-contg. phosphate bath with colloidal oxide for coating of metal surfaces)

IT 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (colloidal; resin-contg. phosphate bath with colloidal oxide for coating of metal surfaces)

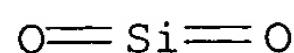
RN 1314-23-4 HCPLUS
 CN Zirconium oxide (ZrO₂) (8CI, 9CI) (CA INDEX NAME)



RN 1344-28-1 HCPLUS
 CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



- L65 ANSWER 34 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1998(5):35-760 METADEX
TI Effect of metallic substrate composition on the protective power of a water-proof epoxy primer in marine environment.
AU Beccaria, A.M. (CNR); Castello, G. (Universita di Genova); Zampella, M.G. (Universita di Genova); Poggi, G. (CNR)
SO Norwegian University of Science and Technology. Congress Department, Glosshaugen, Trondheim, N-7034, Norway. 1997. 381-386, Numerical Data, Graphs, 14 ref.
Conference: EUROCORR '97. Vol. I, Trondheim, Norway, 22-25 Sept. 1997
DT Conference Article
CY Norway
LA English
AB The protective power of a water-proof epoxy primer, environmentally friendly, on different substrates (mild steel, hot dip zinc coated steel, pure aluminium) was assessed in NaCl solutions, simulating the marine atmosphere environment. Water emulsion of an epoxy resin with a zinc phosphate dispersion as anti-corrosion pigment was painted on the metal surface to obtain a coating 45 μm thick. Adhesion tests and FT/IR analyses were carried out in order to characterise the coating layer before the exposure in the corrosive solution, at 25 deg C. EIS tests were carried out on specimens pre-exposed for different times (0.5 to 360 h) to assess the protective power of the epoxy primer and its water uptake. Electrochemical and free corrosion tests show the influence of the metal substrate on the protective power of the primer which acts as corrosion inhibitor of steel and aluminium substrates, whereas it does not inhibit Zn corrosion, owing to the formation of Zn corrosion products spalling the organic layer since their lattice dimensions are too large with respect to the metallic matrix.
CC 35 Corrosion
CT Conference Paper; Carbon steels: Corrosion; Galvanized steels: Corrosion; Aluminum: Corrosion; Corrosion resistance: Coating effects; Primers (coatings): Corrosion; Marine environments
ET Cl*Na; NaCl; Na cp; cp; Cl cp; Zn
- L65 ANSWER 35 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1998(1):35-27 METADEX
TI Comparative EIS study of pretreatment performance in coated metals.
AU Tang, Nie (Department of Materials Science and Engineering, University of Cincinnati,); van Ooij, Wim J. (tment of Materials Science and Engineering, University of Cincinnati,); Gorecki, George (America, Inc.,)
SO Progress in Organic Coatings (1 Apr. 1997) 30, (4), 255-263
ISSN: 0033-0655
DT Journal
CY Switzerland
LA English
AB Various coated metal samples with different pretreatments were investigated by electrochemical impedance spectroscopy (EIS). Variables were the substrate (cold-rolled steel and hot-dipped galvanized steel), phosphate system (iron and zinc phosphate), post rinse (chromate and silane/zirconium rinse) and paint systems. The corrosion performance was determined on the basis of coating degradation, water uptake and interface

delamination of the tested samples. The zinc phosphate performed better than iron phosphate on CRS. The silane/Zr rinse did not perform well in the CRS/iron-phosphate system. However, it showed a better performance than the chromate when used as a post rinse of zinc phosphate. Salt spray test (SST) and adhesion test results of the same samples are also reported in this paper and compared to the EIS data. The correlation among three test methods was poor. Copyright (c) 1997 Elsevier Science S.A. All rights reserved.

CC 35 Corrosion; 57 Finishing
CT Journal Article; Steels: Corrosion; Galvanized steels: Corrosion; Delaminating: Coating effects; Moisture content: Coating effects; Paints; Phosphating (coating); Rinsing; Salt spray tests; Adhesion tests

L65 ANSWER 36 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1998(8):57-1150 METADEX
TI Advanced zinc phosphate conversion coatings.
AU Handsy, I.C. (US Army); Sugama, T. (Associated Universities)
SO Naval Surface Warfare Center-Carderock Division 1997. 8.1-8.29,
Photomicrographs, Graphs, Diffraction Patterns, 18 ref.
Conference: 1997 Tri-Service Conference on Corrosion. II, Wrightsville
Beach, North Carolina, USA, 17-21 Nov. 1997
DT Conference Article
LA English
AB A SERDP-sponsored program aimed at developing environmentally benign zinc phosphate conversion coatings and their process technologies for the electrogalvanized steel (EGS). We succeeded in formulating an environmentally acceptable phosphate solution without Co- and Ni-related additives, and also in replacing a hexavalent Cr acid sealant applied over the zinc phosphate ($ZnxPh$) layers with a water-based polysiloxane sealers. The specific advantages of the newly developed $ZnxPh$ coatings were as follows: (1) there was rapid growth of uniform, dense embryonic $ZnxPh$ crystals on the EGS surfaces due to the creation of short-circuited cells with Mn acting as the cathode and the galvanized (zinc) coatings as the anode, (2) an excellent protection layer against corrosion was formed, extending the service life of zinc layers as galvanic sacrifice barriers, and (3) adhesion to the electro-deposited polymeric primer coating was improved because of the interaction between the siloxane sealer and primer. A full-scale demonstration to evaluate the reproducibility of this new coating technology on mini-sized automotive door panels made from EGS was carried out in collaboration with the Palnut Company (as industrial coating applicator) in New Jersey. All of the 150 mini-door panels were successfully coated with $ZnxPh$.

CC 57 Finishing
CT Conference Paper; Low carbon steels: Coating; Automotive components;
Conversion coating; Phosphates: Coatings; Galvanized steels: Coating;
Pollution abatement; Zinc compounds: Coatings; Electrodeposition; Sealing
ALI 1006 CCA: SCL
ET Co; Ni; Cr; Mn

L65 ANSWER 37 OF 89 HCPLUS COPYRIGHT 2002 ACS
AN 1996:678579 HCPLUS
DN 125:305939
TI Manufacture of black **galvanized** steel sheets
IN Watanabe, Koichi; Aoki, Tomohisa; Kitsutaka, Toshiharu
PA Nisshin Steel Co Ltd, Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C23C022-12

ICS B32B015-08; C23C022-78; C23C028-00
 ICA C23C022-24
 CC 55-6 (Ferrous Metals and Alloys)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08218181	A2	19960827	JP 1995-47862	19950213
AB	The process comprises debinding galvanized or Zn alloy-coated steel sheets, washing with water, treating with weakly alk. surface controlling solns. contg. 30-100 ppm Ti hydroxide particles, spraying with Zn phosphating baths contg. Ni ions 3.5-7.0 g/L and having total acid degree detn. by neutralization of phenolphthalein with 0.1 N NaOH at .gtoreq.65.degree. to give a coating layer contg.lic acid) (p(AA)) and water, the resulting electrochemical reaction led to the creation of short-circuited cells with cobalt acting as the cathode and the galvanized (zinc) coating as the anode. These cells accelerate the anodic dissolution of Zn, which then rapidly precipitates embryonic zinc phosphate tetrahydrate (hopeite) crystals on the EGS surfaces, resulting in their complete coverage with fully grown hopeite crystals after only 5 s immersion. The hopeite layers formed not only serve to protect the galvanized coatings against NaCl-induced corrosion, but also contribute significantly to improving adhesion to the polyurethane (PU) topcoating. The reasons for the latter improvement were due primarily to the following: (1) the interfacial chemical reaction between the p(AA) existing at the top surface of hopeite and the PU, and (2) the anchoring effects of the penetration of PU into the rough hopeite crystal layers.				
CC	58 Metallic Coating				
CT	Journal Article; Low carbon steels: Coating; Galvanized steels: Coating; Phosphate coatings: Reactions (chemical); Anodic dissolution: Coating effects; Corrosion: Coating effects				
ALI	1006 CCA: SCL				
ET	$H^*O^*P^*Zn$; $Zn_3(PO_4)_2 \cdot 4H_2O$; Zn cp; cp; P cp; O cp; H cp; H^*O^*P ; H_3PO_4 ; $Co^*H^*N^*O$; $Co(NO_3)_2 \cdot 6H_2O$; Co cp; N cp; Zn; Cl^*Na ; Na cp; Cl cp .				
L65	ANSWER 39 OF 89 METADEX COPYRIGHT 2002 CSA				
AN	1995(8):57-1019 METADEX				
TI	Zinc phosphating.				
AU	Eriksson, M. (Oakite Products)				
SO	Met. Finish. (1995) 93, (4A), 39-40, 42-48, 51-56, Photomicrographs, Graphs				
	ISSN: 0026-0576				
DT	Journal				
CY	United States				
LA	English				
AB	Zinc phosphate is a crystalline conversion coating that is formed on a metal substrate utilizing the chemical reaction between metal ions that have been dissolved in mineral acids and then diluted with water to form the process solution. Zn phosphating processes rely on the basic pickling reaction that occurs on the metal substrate when the process solution comes in contact with the metal. The mineral acids normally used to dissolve the metal ions are nitric and phosphoric acids. Metals such as Zn, nickel, and manganese are dissolved depending on the process necessary. Several other metals can be dissolved to create specific characteristics. Nickel plays a major role in achieving an acceptable corrosion resistance of the coating as well as accelerating the process chemistry. More recent developments have created Ni-free processes that can compete with the Ni-containing processes in all areas. Accelerators are added to phosphating processes for specific reasons such as reaction speed, hydrogen elimination, and sludge formation control. Accelerators				

can be used as single materials or can be mixed to achieve the most effective combination. Several materials can be used including nitrite/nitrate, chlorate, bromate, peroxide, and organic compounds such as sodium nitrobenzene sulfonate (SNBS). Other additives are used such as free and/or complex fluorides when, for example, hot-dipped galvanized and/or aluminum substrates are treated.

CC 57 Finishing
 CT Journal Article; Galvanized steels: Coating; Aluminum: Coating;
 Phosphating (coating); Finishing baths
 ET Zn; Ni

L65 ANSWER 40 OF 89 HCAPLUS COPYRIGHT 2002 ACS
 AN 1994:489364 HCAPLUS
 DN 121:89364
 TI Coated aluminum alloy sheets suitable for phosphating in contact with **galvanized** steel
 IN Toyose, Kikuro; Tsuruno, Akihiro; Fujimoto, Hideo
 PA Kobe Steel Ltd, Japan
 SO Jpn. Kokai Tokkyo Koho, 4 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C23C018-52
 ICS C23C022-78; C25D015-02
 CC 56-6 (Nonferrous **Metals** and Alloys)
 Section cross-reference(s): 55

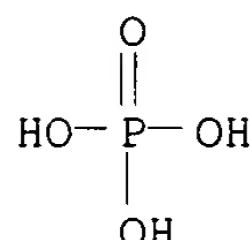
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 06088247	A2	19940329	JP 1992-264182	19920907
AB	The Al alloy sheets are coated with a film of composite oxide of Fe, Zn, and Si at a coating amt. of 0.3-3 g/m ² . The coating contains 1-10% Fe and 70-88% Zn, and the coated Al alloy sheets have a natural potential higher than -1000 mV in aq. H ₂ PO ₄ (pH = 3).				
ST	oxide coated aluminum alloy sheet				
IT	7631-86-9, Silicon dioxide, uses RL: USES (Uses) (aluminum alloy sheets coated with composite oxide films contg., suitable for coating with zinc phosphate)				
IT	12597-69-2, Steel, miscellaneous RL: MSC (Miscellaneous) (aluminum alloys used by contacting with, composite coatings for, for zinc phosphate treatment)				
IT	1314-13-2, Zinc oxide (ZnO), properties 1344-09-8, Water glass 7705-08-0, Iron chloride (FeCl ₃), properties RL: PRP (Properties) (bath contg., coating, composite, for aluminum alloys for zinc phosphate treatment)				
IT	7779-90-0 RL: USES (Uses) (coating of, on aluminum alloy sheets, precoating with composite oxide films in)				
IT	7439-89-6, Iron, uses 7440-66-6, Zinc, uses RL: USES (Uses) (coatings contg., composite, on aluminum alloys, for zinc phosphate treatment)				
IT	37202-63-4 RL: USES (Uses) (coatings for, composite, iron-zinc-silicon oxide, for zinc phosphate treatment)				

IT **7631-86-9**, Silicon dioxide, uses
 RL: USES (Uses)
 (aluminum alloy sheets coated with composite oxide films contg.,
 suitable for coating with zinc phosphate)
 RN 7631-86-9 HCPLUS
 CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



IT **7779-90-0**
 RL: USES (Uses)
 (coating of, on aluminum alloy sheets, precoating with composite oxide
 films in)
 RN 7779-90-0 HCPLUS
 CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 41 OF 89 COMPENDEX COPYRIGHT 2002 EI
 AN 1995(15):1774 COMPENDEX
 TI New ways of wire treatment prior to slip drawing.
 AU Nittel, Klaus-Dieter (Surface Technology Division of Chemetall GmbH,
 Frankfurt/Main, Ger)
 SO Wire v 44 n 5 Oct 1994.p 303-308
 CODEN: WIRDAK ISSN: 0043-5996
 PY 1994
 DT Journal
 TC General Review; Experimental
 LA English
 AB All coatings are applied by immersion and, under certain conditions, by
 continuous-pass processes. All lubricants are dissolved or dispersed in
water and are easily removable with alkaline, **aqueous**
 cleaners. However, **zinc phosphating** will remain an
 essential and, for many years to come, indispensable component of surface
 treatment prior to cold forming.
 CC 535.2.2 Metal Forming Practice; 804.2 Inorganic Components; 813.2 Coating
 Materials; 539.2.1 Protection Methods; 454.2 Environmental Impact and
 Protection; 902.2 Codes and Standards
 CT *Wire; Wire drawing; Metallic soaps; **Phosphate** coatings;
Galvanized metal; Corrosion protection; Pollution control; Codes
 (standards); Surface treatment
 ST Lubricant carriers; Wire treatment
 L65 ANSWER 42 OF 89 METADEX without rinsing)
 IT **7631-86-9**, Silica, uses
 RL: USES (Uses)
 (aq. **phosphating** bath contg. divalent metal and,

for anticorrosive priming of metals)

IT 1305-62-0, Calcium hydroxide, uses 3486-35-9, Zinc carbonate
7439-95-4, Magnesium, uses
RL: USES (Uses)
(aq. phosphating bath contg. silica and,
for anticorrosive priming of metals)

IT 7664-39-3, Hydrogen fluoride, uses 10043-35-3, Boric acid, uses
RL: USES (Uses)
(aq. phosphating bath contg., for anticorrosive
priming of metals)

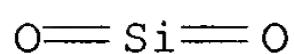
IT 12597-69-2, Steel, uses 52308-11-9 109145-92-8
RL: USES (Uses)
(primers for, phosphating bath used without rinsing)

IT 7429-90-5, Aluminum, miscellaneous
RL: MSC (Miscellaneous)
(primers for, phosphating bath used without rinsing)

IT 7631-86-9, Silica, uses
RL: USES (Uses)
(aq. phosphating bath contg. divalent metal and,
for anticorrosive priming of metals)

RN 7631-86-9 HCPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 44 OF 89 METADEX COPYRIGHT 2002 CSA
 AN 1994(5):57-554 METADEX
 TI Method for Zinc Phosphating Metal Surface To Be Treated by the Cationic Electrodeposition Coating.
 AU Jo, M. (Nippon Paint); Mino, Y. (Nippon Paint); Sobata, T. (Nippon Paint)
 PI EP 564287A2 6 Oct. 1993
 AD 1 Apr. 1993
 DT Patent
 LA English
 AB By using a zinc phosphating solution, which does not contain a nickel ion, but contains 0.1-4 g/l of a cobalt ion, 0.1-3 g/l of a manganese ion, a phosphating accelerator, 200-500 mg/l of a simple fluoride compound in terms of HF concentration and a complex fluoride compound in a mole ratio of 0.01-0.5 relative to the simple fluoride compound, a zinc phosphate coating film suitable for cationic electrodeposition coating and superior in coating film adhesiveness and corrosion resistance, especially in warm brine resistance and scab resistance, is formed simultaneously on an iron-based, a zinc-based and an aluminum-based surface by using an identical solution.
 CC 57 Finishing
 CT Patent; Strip steel: Coating; Galvanized steels: Coating; Aluminum base alloys: Coating; Phosphating (coating); Corrosion resistance: Coating effects; Surface pretreatments; Salt water: Environment
 ET Be; F*H; HF; H cp; cp; F cp

L65 ANSWER 45 OF 89 METADEX COPYRIGHT 2002 CSA
 AN 1994(5):57-553 METADEX
 TI Method for Zinc Phosphating Metal Surface.
 AU Jo, M. (Nippon Paint); Mino, Y. (Nippon Paint); Sobata, T. (Nippon Paint)
 PI EP 564286A2 6 Oct. 1993
 AD 1 Apr. 1993
 DT Patent

CY Switzerland
LA English
AB A zinc phosphate coating film suitable for cationic electrodeposition coating and superior in both of coating film adhesion and corrosion resistance (especially, warm brine resistance and scab resistance) is formed by a conversion treatment of a metal surface using an acidic zinc phosphating solution which does not contain a nickel ion as an essential component. The conversion treatment is carried out by bringing metal surface into contact with solution containing a Zn ion of 0.1-2.0 g/l, a phosphate ion of 5-40 g/l, a lanthanum compound of 0.001-3 g/l in terms of a lanthanum metal, and a phosphating accelerator, thereby the zinc phosphate coating film is formed on the metal surface (e.g. a steel sheet, a zinc plated steel sheet or an aluminium alloy sheet).

CC 57 Finishing
CT Patent; Strip steel: Coating; Galvanized steels: Coating; Aluminum base alloys: Coating; Phosphating (coating); Corrosion resistance: Coating effects; Surface pretreatments; Salt water: Environment
ET Zn

L65 ANSWER 46 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1993(4):57-522 METADEX
TI Activator for Use in Phosphating Processes.
AU Rein, R. (Metallgesellschaft); Jentsch, D. (Metallgesellschaft); Wittel, K.-W. (Metallgesellschaft)
PI US 5160551 3 Nov. 1992
AD 17 Apr. 1991
DT Patent
LA English
AB The activating agent which is based on titanium (IV) phosphate and intended for use in the activation of metal surfaces before a zinc phosphating treatment contains one or more Cu compounds and has a Ti:Cu weight ratio of 1:100 to 60:1 and optionally contains in addition at least one of the components consisting of condensed phosphate, silicate, complexing agent, water-soluble organic polymer, thickening agent, and surfactant. It is used to prepare aqueous activating baths for activating Fe, steel, galvanized steel, Zn alloy-plated steel, Al-plated steel and Al before a zinc phosphating treatment, which baths contain 0.001-0.060 g/l Ti, 0.020-1.2 g/l orthophosphate (calculated as P2O5), and 0.001-0.1 g/l Cu and so much alkali that the bath has a pH value of 7-11, preferably of 7.5-10.

CC 57 Finishing
CT Patent; Activation; Steels: Surface finishing; Phosphating (coating)
ET Cu; Cu*Ti; Cu sy 2; sy 2; Ti sy 2; Ti:Cu; Cu doping; doped materials; Fe; Zn; Al; Ti; O*P; P2O5; P cp; cp; O cp

L65 ANSWER 47 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1992(9):57-1157 METADEX
TI Phosphatizing Compositions Containing Zinc Ions and a Polar or Non-Polar Solvent.
AU Fukushima I. (Nippon Dacro Shamrock); Okada, H. (Nippon Dacro Shamrock)
PI GB 2249108 16 Sept. 1992
AD 29 Apr. 1992
DT Patent
LA English
AB A phosphatizing composition comprises (a) 100 parts by weight of a first mixed solvent containing 100 parts by weight of a polar organic solvent having a boiling point of not < 0 deg C/760 mmHg and constituting at least 50 wt.% of the mixed solvent; (b) 0.0001-7 parts by weight of a phosphoric acid; (c) 0.01-5 parts by weight Zn ions; and (d) 0.01-5 parts by weight of a solubilizing agent. An alternative phosphatizing composition

comprises: (e) 100 parts by weight of a second mixed solvent containing 100 parts by weight of a nonpolar organic solvent having a boiling point of not < 0 deg C/760 mmHg, not < 0.5 parts by weight of a solubilizing solvent and not more than a homogeneous phase forming limit amount of water; (f) 0.0001-7 parts by weight of a phosphoric acid; (g) 0.001-3.5 parts by weight of Zn ions; and (h) 0.01-5 parts by weight of a solubilizing agent. The solubilizing solvent is a component which dissolves phosphoric acid, Zn, the solubilizing agent and water in the composition and exemplified compounds are polar organic solvents used in the first composition, e.g. t-butanol. The composition may also contain ions of one or more of Ni, Mn, Ca, Na, magnesium, Cu and cobalt and is used for modifying the surface of Fe, steel, galvanized iron, alloys of Fe, Al or Mg or other metallic materials.

CC 57 Finishing

CT Patent; Phosphating (coating); Finishing baths: Development

ET Hg; Zn; Ni; Mn; Ca; Na; Cu; Fe; Al; Mg

L65 ANSWER 48 OF 89 METADEX COPYRIGHT 2002 CSA

AN 1994(6):57-770 METADEX

TI Composition and Method for Inhibiting Corrosion and/or Promoting Adhesion of a Metal Surface.

AU Lawson, R.J. (ICI)

PI EP 517356 9 Dec. 1992

AD 6 Apr. 1992

DT Patent

LA English

AB A composition comprises at least one compound which is a 2,6-bis hydroxyalkylamino methyl phenol. The composition is typically water-based and certain of the compounds are novel. The composition or the compound may be deposited onto a metal surface. The coated metal surface can have corrosion inhibiting and/or adhesion promoting characteristics. The invention relates especially to zinc surfaces or Zn-coated and phosphated steel surfaces.

CC 57 Finishing; 35 Corrosion

CT Patent; Zinc: Coating; Galvanized steels: Coating; Phosphate coatings; Protective coatings; Inhibitors; Corrosion prevention: Coating effects; Adhesion: Coating effects

ET Zn

L65 ANSWER 49 OF 89 HCPLUS COPYRIGHT 2002 ACS

AN 1991:251527 HCPLUS

DN 114:251527

TI Surface treating agents and surface treatment of **galvanized** steel strips

IN Yamamoto, Naotaka; Wada, Hideo

PA Nippon Paint Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C23C022-28

ICS C23C022-30

CC 55-6 (Ferrous Metals and Alloys)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 02190479	A2	19900726	JP 1989-10282	19890119
AB	Galvanized steel strips are treated with a surface treating agent contg. partly sapon. polyvinyl acetate (sapon. degree .ltoreq.85, d.p. .ltoreq.500) 5-20, a Cr compd. 6-24 (as Cr), SiO ₂ 10-40,				

and a **waterprofing** agent 0.1-1 wt. part (as metal ion) at pH 0.5-2.5 to form a chromate-contg. coating. The surface-treated steel strips have high resistance to corrosion and blackening, and improved paint adhesion. Optionally, the steel strips are pretreated with Zn₃(PO₄)₂.

- ST **galvanized** steel surface treatment; chromate coating
galvanized steel; polyvinyl acetate coating **galvanized** steel; **silica** coating **galvanized** steel
- IT **Galvanized** iron and steel
 RL: USES (Uses)
 (coating of, with chromate-polyvinyl acetate-**silica** mixts.)
- IT Chromates
 RL: USES (Uses)
 (coatings cncluding galvanized steel, is free of white spots and is suitable for electrocoating.
- CC 57 Finishing
- CT Patent; Galvanized steels: Coating; Phosphating (coating); Finishing baths
- ET Zn; Mn
- L65 ANSWER 51 OF 89 METADEX COPYRIGHT 2002 CSA
 AN 1992(5):58-801 METADEX
 TI Phosphating Process.[Phosphatierverfahren].
 AU Bittner, K. (Metallgesellschaft); Muller, G. (Metallgesellschaft); Rausch, W. (Metallgesellschaft); Wittel, K. (Metallgesellschaft)
 PI EP 359296 21 Mar. 1990
 AD 22 July 1989
 DT Patent
 CY Germany
 LA German
 AB A phosphating process galvanised for surfaces, in particular of galvanised steel, using aqueous Zn ions and phosphate ions, additional layer-building cations, and activator-containing phosphating solutions, is characterised in that the surface is contacted with an aqueous phosphating solution for at most 10 s, the solution containing 0.5-5.0 g/l Zn, 3-20 g/l phosphate, and 0.3-3 g/l magnesium, at a weight ratio of Mg:Zn of 0.5-10:1, and which has a weight ratio of Zn:phosphate in the range 0-1:8.
 CC 58 Metallic Coating
 CT Patent; Galvanized steels: Coating; Phosphating (coating); Finishing baths
 ET Zn; Mg*Zn; Mg sy 2; sy 2; Zn sy 2; Mg:Zn; Zn doping; doped materials
- L65 ANSWER 52 OF 89 HCPLUS COPYRIGHT 2002 ACS
 AN 1990:100791 HCPLUS
 DN 112:100791
 TI **Water-based** dip coating materials
 IN Takashio, Hideyoshi; Misawa, Masayuki; Kasukawa, Takahisa; Enokibata, Tamayoshi
 PA Kansai Paint Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 5 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C09D005-02
 ICS C09D005-00
 CC 42-7 (Coatings, Inks, and Related Products)
 FAN.CNT 1
- | | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|---|------|----------|-----------------|----------|
| PI | JP 01247472 | A2 | 19891003 | JP 1988-75779 | 19880329 |
| AB | Corrosion-resistant title coatings mainly comprise 100 parts resins and pigments including 10-25 parts carbon black having sp. oil absorption (A; | | | | |

g/100 g) .gtoreq.90, with total oil absorption of all the pigments being 5000-25,000. Thus, 167 g 60% aq. epoxy ester resin soln. was mixed with carbon black (A 100) 18, SrCrO₄ (A 23) 3, clay (A 60) 80, and finely powd. silica (A 300) 10, water 100, and ethylene glycol monoethyl ether 66 g, then dild. with 2:1 water /ethylene glycol mono-Bu ether to Ford Cup No. 4 viscosity (25.degree.) 60 s. Zn phosphate-treated galvanized steel sheets were dip coated in the compn. and baked to give specimens with smooth coatings, which showed good impact resistance and no corrosion (even at edges) after spraying with salt water for 240 h.

ST water sol resin dip coating; carbon black dip coating anticorrosive; oil absorption pigment dip coating

IT Galvanized iron and steel

RL: USES (Uses)
 (anticorrosive water-thinned dip coatings for, contg. highly oil-absorbent pigments)

IT Carbon black, uses and miscellaneous

RL: USES (Uses)
 (water-sol. polymer dip coatings contg. highly oil-absorbent, anticorrosive)

IT Clays, uses and miscellaneous

RL: USES (Uses)
 (water-sol. polymer dip coatings contg., anticorrosive)

IT Coating materials
 (anticorrosive, dip, water-thinned, contg. sol. resins and highly oil-absorbent pigments including carbon black)

IT 7631-86-9, Silica, uses and miscellaneous 7789-06-2, Strontium chromate

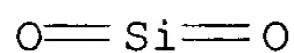
RL: USES (Uses)
 (water-sol. polymer dip coatings contg., anticorrosive)

IT 7631-86-9, Silica, uses and miscellaneous

RL: USES (Uses)
 (water-sol. polymer dip coatings contg., anticorrosive)

RN 7631-86-9 HCAPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 53 OF 89 METADEX COPYRIGHT 2002 CSA
 AN 1990(7):57-1040 METADEX
 TI Process of Producing Phosphate Coatings.
 AU Hauffe, D.; Kuhna, R.; Muller, G.; Rausch, W.; Schumichen, H.
 CS Metallgesellschaft
 SO Off. Gaz. ISSN: 0360-5132
 PI US 4867853 19 Sept. 1989
 AD 7 Oct. 1987
 DT Patent
 LA English
 AB A process of producing a phosphate coating on a composite part consisting of steel and galvanized steel is developed. The process consists essentially of alkaline cleaning the part; rinsing the cleaned part with an aqueous rinsing solution which contains at least 0.2 g/l alkali borate, at least 0.1 g/l alkali silicate and at least 0.05 g/l alkali nitrite; and phosphatizing the rinsed part with a zinc phosphate solution.
 CC 57 FINISHING
 CT Steels: Coating; Galvanized steels: Coating; Phosphating (coating); Alkaline cleaning; Patents

L65 ANSWER 54 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1990(12):57-1724 METADEX
TI A Study on the Hopeite Crystal Deposited on Galvanized Steel.
AU Suzuki, M.; Hayashi, H.; Kiyomatsu, J.; Miyawaki, T.; Matsushima, Y.
CS Nihon Parkerizing
SO The Iron and Steel Institute of Japan. Keidanren Kaikan, 9-4 Otemachi
1-chome, Chiyoda-Ku, Tokyo 100, Japan. 1989. 222-229. Accession Number:
90(12):72-539
Conference: International Conference on Zinc and Zinc Alloy Coated Steel
Sheet-GALVATECH '89, Tokyo, Japan, 5-7 Sept. 1989
DT Conference
LA English
AB Zinc phosphate coatings (hopeite crystal) are widely used as a
pretreatment before painting on galvanized steel sheet. They are typically
composite coatings containing Ni and Mn. Coatings containing Ni and Mn
improve the adhesion and corrosion resistance after painting. However, if
the Mn content exceeds a certain level, the problem of a corrosion
resistance decrease during the warm salt water soak test arises. In this
study, to determine the effect of additive metals on the resistance of the
phosphate coating to solubility in an alkali, synthetic hopeites were
prepared with various additive metals and these coatings were examined for
solubility in the alkali. From X-ray diffraction, thermal analysis, etc.,
of the hopeites containing various additive metals, properties such as
strain and dehydration behaviour of the crystals were induced. The effects
of the additive metals were determined from the correlation between such
properties and the alkali solubility. Spectra, Photomicrographs, Graphs. 6
ref.-AA
CC 57 FINISHING
CT Precoated strip: Coating; Galvanized steels: Coating; Phosphate coatings:
Solubility; Alkalies: Solubility; Solubility: Impurity effects; Nickel:
Trace elements; Manganese: Trace elements
ET Ni; Mn; In

L65 ANSWER 55 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1990(3):35-552 METADEX
TI Corrosion of Galvanised Steel and Carbon Steel in Daeerated Aqueous
Solutions of Industrial Fertiliser Chemicals.
AU Smith, D.J.; van der Schijff, O.J.
CS Potchefstroom University
SO Br. Corros. J. (1989) 24, (3), 189-191
ISSN: 0007-0599
DT Journal
LA English
AB Corrosion rates of galvanised steel in contact with dilute solutions of
various chemicals used as industrial fertilisers were determined by
potentiodynamic measurement. Daeerated solutions containing up to 20 g l⁻¹ of urea phosphate, phosphoric acid, monoammonium phosphate, zinc
sulphate, urea ammonium nitrate, clear ammonium orthophosphate, ammonium
sulphate, potassium chloride, ammonium orthophosphate, potassium sulphate,
and urea were used in the tests. Uncoated C steel was tested in deaerated
solutions of monoammonium phosphate, zinc sulphate, potassium sulphate,
and ammonium sulphate. The results indicate operating concentrations for
satisfactory performance of these metallic materials. 11 ref.-AA
CC 35 CORROSION
CT Galvanized steels: Corrosion; Carbon steels: Corrosion; Corrosion rate;
Water: Environment; Fertilizers: Environment
ALI BS4360 Gr.43A CCA: SCL
ET C

L65 ANSWER 56 OF 89 METADEX COPYRIGHT 2002 CSA
 AN 1991(2):57-129 METADEX
 TI New Paint Shop for a Legendary Car.
 AU Fichtner, J.
 CS Durr
 SO IPE International Industrial and Production Engineering (Dec. 1989) (4),
 66-67, 69
 ISSN: 0343-334X
 DT Journal
 LA English
 AB Maserati of Italy has planned to modernise its paint shop in Milan to comply with both the European and American standards since entering into a joint venture with Chrysler. The plant has been supplied by Durr GmbH with an overall system of paint distribution, water treatment and aqueous pollution control. It incorporates spraybooths of clean room concept and a camel back infrared oven. A four-coat paint system is adopted using zinc phosphate, high build cathodic primer, a two-layer top coat and a clear over-base. The car bodies are coated with high build cathodic electrocoat (approx 30 μm) followed by oven curing and manual spraying.-B.C.
 CC 57 FINISHING
 CT Automotive bodies: Coating; Galvanized steels: Coating; Aluminum base alloys: Coating; Painting; Surface pretreatments; Pollution abatement

L65 ANSWER 57 OF 89 HCPLUS COPYRIGHT 2002 ACS
 AN 1989:9477 HCPLUS
 DN 110:9477
 TI Acrylic polymer adhesive **compositions** for bonding metal and poly(vinyl fluoride)
 IN Yuki, Kei; Takahashi, Kazutomo; Kodama, Kazuo; Kaneko, Kenjiro
 PA Nittetsu Kenzai Kogyo K. K., Japan; Nippon Shokubai Kagaku Kogyo Co., Ltd.
 SO Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C09J003-16
 ICS B32B015-08; C08J005-12; C09J003-14
 CC 38-3 (Plastics Fabrication and Uses)
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 63199783	A2	19880818	JP 1987-34021	19870217
	JP 06060302	B4	19940810	

AB Corrosion-preventing adhesives for bonding Zn-plated steel or Al plates to poly(vinyl fluoride) films comprise an acrylic polymer contg. groups H₂NZCO₂ (Z = C₂-3 alkylene), a dispersion of a corrosion-inhibiting pigment in an epoxy resin, and a silane coupling agent. Zn-plated steel was coated (6 μm , dry) with an adhesive contg. a reaction product of Bu acrylate-Bu methacrylate-methacrylic acid-Me methacrylate copolymer and ethylenimine 100, a 58.7:12.9:28.4 Epikote 828-Zn₃(PO₄)₂-PhMe mixt. 10, and H₂N(CH₂)₃Si(OEt)₃ 1 part, dried 40 s at 200.degree., and pressed with a 38-. μm pigment-contg. poly(vinyl fluoride) film at 7 kg/cm to give a laminate with good adhesion and resistance to hot **water** and weathering.
 ST acrylic adhesive anticorrosive; epoxy adhesive anticorrosive; ethylenimine acrylic adhesive anticorrosive; **zinc phosphate**
 adhesive anticorrosive; amino silane adhesive anticorrosive; polyvinyl fluoride adhesive anticorrosive; fluoropolymer film adhesive anticorrosive; corrosion prevention adhesive metal; adhesive anticorrosive fluoropolymer metal
 IT Epoxy resins, uses and miscellaneous

IT RL: USES (Uses)
 (adhesives contg., anticorrosive, for fluoropolymer film and metals)

IT Corrosion inhibitors
 (adhesives contg., for poly(vinyl fluoride) film and metals)

IT Fluoropolymers
 RL: USES (Uses)
 (adhesives for metals and, anticorrosive)

IT Galvanized iron and steel
 RL: USES (Uses)
 (adhesives for poly(vinyl fluoride) film and, anticorrosive)

IT Coupling agents
 (silanes, in adhesives for poly(vinyl fluoride) film and metals)

IT Adhesives
 (anticorrosive, for poly(vinyl fluoride) film and metals)

IT 151-56-4D, Ethyleneimine, reaction products with acrylic polymers
 7440-24-6, Strontium, uses and miscellaneous 7779-90-0, Zinc
 phosphate 13463-67-7, Titanium dioxide, uses and
 miscellaneous 25068-38-6, Epikote 828 26184-07-6D, Butyl acrylatebutyl
 methacrylate-methacrylic acidmethyl methacrylate copolymer, reaction
 products with ethylenimine 61583-60-6, Zinc molybdate
 RL: USES (Uses)
 (adhesives contg., anticorrosive, for fluoropolymer film and metals)

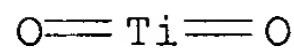
IT 7429-90-5, Aluminum, uses and miscellaneous 12597-69-2, Steel, uses and
 miscellaneous
 RL: USES (Uses)
 (adhesives for poly(vinyl fluoride) film and, anticorrosive)

IT 919-30-2, 3-Aminopropyltriethoxysilane 2530-83-8, 3-
 Glycidoxypipropyltrimethoxysilane
 RL: USES (Uses)
 (coupling agent, in adhesives for fluoropolymer film and metals)

IT 24981-14-4, Poly(vinyl fluoride)
 RL: USES (Uses)
 (film, adhesives for metals and, anticorrosive)

IT 13463-67-7, Titanium dioxide, uses and miscellaneous
 RL: USES (Uses)
 (adhesives contg., anticorrosive, for fluoropolymer film and metals)

RN 13463-67-7 HCPLUS
 CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 58 OF 89 HCPLUS COPYRIGHT 2002 ACS
 AN 1989:99692 HCPLUS
 DN 110:99692
 TI Oxide coating of **galvanized** steel strip for spot weldability
 IN Suzuki, Shinichi; Kanamaru, Tatsuya; Hotta, Takashi
 PA Nippon Steel Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C23C030-00
 ICS B23K011-16; C23C008-10; C23C022-00; C23C028-00; C25D011-00
 CC 55-6 (**Ferrous Metals** and Alloys)
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI JP 63186883 A2 19880802 JP 1987-16137 19870128
 AB The **galvanized** steel strip is coated with an oxide film (5-500 mg/m²) for spot weldability. The mol ratio of **water** and oxide contents in the film is <6, and an oil is applied on the coated film. Thus, an electrogalvanized steel strip was coated with a film contg. **water** and 100 mg/m² of Cr₂O₃, ZnO, and Zn₃(PO₄)₂ at the **water**-oxide mol ratio of 5.7. The coated strip was overcoated with an oil and spot welded for 4000 vs. 500-1000 spots by conventional means.

ST oxide coating **galvanized** steel weldability; chromium oxide coating **galvanized** steel; zinc oxide coating **galvanized** steel; phosphate zinc coating **galvanized** steel

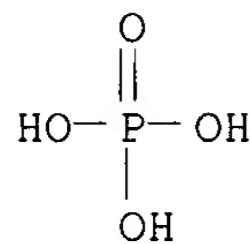
IT 1307-96-6, Cobalt oxide (CoO), uses and miscellaneous 1308-38-9, Chromium oxide (Cr₂O₃), uses and miscellaneous 1313-13-9, Manganese dioxide, uses and miscellaneous 1314-13-2, Zinc oxide (ZnO), uses and miscellaneous 1344-28-1, **Alumina**, uses and miscellaneous 7779-90-0, Zinc phosphate (Zn₃(PO₄)₂) 12036-01-0, **Zirconium oxide** (ZrO) 13463-67-7, **Titania**, uses and miscellaneous
 RL: USES (Uses)
 (oxide film contg., on **galvanized** steel strip for spot weldability)

IT 1344-28-1, **Alumina**, uses and miscellaneous 7779-90-0, Zinc phosphate (Zn₃(PO₄)₂) 13463-67-7, **Titania**, uses and miscellaneous
 RL: USES (Uses)
 (oxide film contg., on **galvanized** steel strip for spot weldability)

RN 1344-28-1 HCPLUS
 CN Aluminum oxide (Al₂O₃) (8CI, 9CI) (CA INDEX NAME)

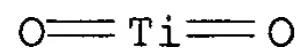
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7779-90-0 HCPLUS
 CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

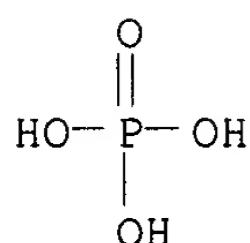
RN 13463-67-7 HCPLUS
 CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 59 OF 89 HCPLUS COPYRIGHT 2002 ACS
 AN 1988:496912 HCPLUS
 DN 109:96912
 TI Formation of black coating on zinc- or zinc alloy-plated steels
 IN Ataya, Takeshi; Yamashita, Masaaki; Kubota, Takahiro; Koizumi, Soei;

Okano, Yasuhiro
 PA Nippon Kokan K. K., Japan; Nihon Parkerizing Co., Ltd.
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C23C022-50
 CC 55-6 (Ferrous Metals and Alloys)
 Section cross-reference(s): 38
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 63035784	A2	19880216	JP 1986-178854	19860731
AB	A Zn or Zn alloy (esp. Zn- or Zn alloy-plated strip steel) is treated in an aq. soln. (pH 0.5-7) contg. 1.5-20 Bi and 9-100 g Ni, Fe, and/or Cr ion/L with metal ion: Bi ion mol ratio of 10-100 to form a black coating layer and is optionally coated with phosphate, 0.01-3-.mu. alkali silicate, chromate at 1-1000 mg/m ² (as Cr), and/or org. polymer over the black coating layer. The treatment results in increased spangle formation and corrosion resistance. Thus, a Zn-plated steel plate was sprayed for 5 s with an aq. soln. (pH 2, 50-60.degree.) contg. 3 Bi and 15 g Ni/L to form a black coating layer, and which was coated with a chromate (solid concn. 20 g/L, Cr ³⁺ :Cr ⁶⁺ ratio 2:3, pH 2.5) at 50 mg/m ² (as Cr) and Li silicate (SiO₂ concn. 50 g/L) at 0.3 mg/m ² (as SiO₂). The obtained steel plate was dark and had a superior finger print resistance, chromate coating adhesion, and corrosion resistance in a 5% brine-spray test to the same steel plate only treated with an aq. soln. contg. 1 Bi- and 15 g Ni/L.				
ST	coating galvanized steel; nickel bismuth coating galvanized steel; chromate coating galvanized steel; lithium silicate coating galvanized steel				
IT	Galvanized iron and steel RL: USES (Uses) (coating soln. for, blackening)				
IT	10361-44-1, Bismuth nitrate (Bi(NO ₃) ₃) 13138-45-9, Nickel nitrate (Ni(NO ₃) ₂) RL: USES (Uses) (coating soln. contg., blackening, for galvanized steel)				
IT	7779-90-0, Zinc phosphate 115988-33-5 RL: USES (Uses) (coating with, on blackened galvanized steel)				
IT	7779-90-0, Zinc phosphate RL: USES (Uses) (coating with, on blackened galvanized steel)				
RN	7779-90-0 HCAPLUS				
CN	Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)				



3/2 Zn

L65 ANSWER 60 OF 89 HCAPLUS COPYRIGHT 2002 ACS
 AN 1988:426419 HCAPLUS
 DN 109:26419
 TI **Composition** and process for coating metallic parts and coated parts
 IN Mosser, Marck F.; Fabiny, William J.
 PA Sermatech International, Inc., USA
 SO Eur. Pat. Appl., 13 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 IC ICM C23C022-74
 ICS C09D005-08
 CC 56-6 (Nonferrous Metals and Alloys)
 Section cross-reference(s): 38
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 256908	A1	19880224	EP 1987-401677	19870716
	R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
	JP 63069984	A2	19880330	JP 1987-176962	19870715
PRAI	US 1986-886906		19860716		
AB	An aq. acidic phosphate soln. (pH .1toreq.4) for heat-curable coatings and for imparting long-term corrosion resistance esp. to active metal surfaces (Zn, Al, Cd, and ferrous and other metal parts coated with these metals, e.g. Zn-coated steel fasteners) includes a water-sol. acidic phosphate , a polymer resin, which is in soln. or is dispersed in the soln., and a water-sol. corrosion inhibitor. Possible corrosion inhibitors are chromate, esp. dichromate, and molybdate, the molar ratio of the phosphate to chromate or molybdate ions is .gtoreq.2:1, and the wt. ratio of phosphate:resin is .apprx.0.2:1 to .apprx.25:1. Thus, 3 coating compns. were prep'd. by adding 1, 5, and 15% poly(vinylidene fluoride) latex to aq. binder contg. 85% H ₃ PO ₄ and MgCO ₃ . Degreased galvanized steel and chromate conversion-coated 3003 H14 Al panels were coated (5 .mu.) with prep'd. coating compns., dried at 175.degree.F for 15 min, and cured at 525.degree.F for 30 min. The coated steel and Al panels showed superior adhesion of the coating layer, flexibility in bending and impact tests, and corrosion resistance in 24-h 5% salt spray test to the samples coated with binder only. Less resin content was needed to improve phys. properties than for corrosion resistance.				
ST	coating phosphate galvanized steel; polyvinylidene fluoride phosphate coating; phosphoric acid phosphate coating; magnesium carbonate phosphate coating; corrosion inhibitor phosphate coating; aluminum conversion phosphate coating				
IT	Galvanized iron and steel RL: PRP (Properties) (coating of, with polymer-contg. acidic phosphate soln.)				
IT	Coating materials (phosphates , contg. polymers, for active alloys and metals)				
IT	Carbon black, uses and miscellaneous RL: USES (Uses) (phosphoric acid-based coating compns. contg. aq. , for active alloys and metals)				
IT	7664-38-2, Phosphoric acid, uses and miscellaneous 115165-85-0, Basic aluminum zinc phosphate RL: USES (Uses) (coating compns. contg. aq. , for active alloys and metals)				
IT	7429-90-5, Aluminum, uses and miscellaneous 7440-66-6, Zinc, uses and				

miscellaneous
 RL: USES (Uses)
 (coating of castings of, with polymer-contg. acidic **phosphate**
 soln.)

IT 11146-15-9, AA 3003
 RL: USES (Uses)
 (coating of chromate conversion-coated panels of, with polymer-contg.
 acidic **phosphate** soln.)

IT 7631-86-9, Silica, uses and miscellaneous
 RL: USES (Uses)
 (colloidal, phosphoric acid-based coating compns. contg., **aq**
 ., for active alloys and metals)

IT 546-93-0, Magnesium carbonate 1309-48-4, Magnesium oxide, uses and
 miscellaneous 1314-13-2, Zinc oxide, uses and miscellaneous 2795-39-3,
 Fluorad FC 95 7738-94-5, Chromic acid (H₂CrO₄) 9004-35-7, Cellulose
 acetate 9004-62-0, Hydroxyethyl cellulose 9016-45-9 21645-51-2,
 Aluminum hydroxide, uses and miscellaneous 24937-79-9, Poly(vinylidene
 fluoride) 27119-07-9 37367-98-9, Calcium molybdate 68186-91-4, C.I.
 Pigment Black 28 78849-74-8, AMSCO 3077 115165-89-4, Troykyd 999
 RL: USES (Uses)
 (phosphoric acid-based coating compns. contg., for active alloys and
 metals)

IT 7631-86-9, Silica, uses and miscellaneous
 RL: USES (Uses)
 (colloidal, phosphoric acid-based coating compns. contg., **aq**
 ., for active alloys and metals)

RN 7631-86-9 HCAPLUS
 CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 61 OF 89 METADEX COPYRIGHT 2002 CSA
 AN 1988(8):57-874 METADEX
 TI Process for Producing Phosphate Coatings on Metal Surfaces.
 AU Beege, G.; Hauffe, D.; Mische, P.; Rausch, W.
 CS Pyrene Chemical Services
 PI GB 2195359 A 7 Apr. 1988
 AD 18 Sept. 1987
 DT Patent
 LA English
 AB A phosphate coating can be formed on surfaces of Al or its alloys and
 steel or galvanised steel by spray immersion with a zinc phosphate
 solution that contains accelerator and fluoride and that contains 0.4 to
 0.8 g/l Zn, 10 to 20 g/l phosphate and an amount in mg/l of fluoride (Fel)
 as measured by a fluoride-sensitive electrode of from 80 to 220. The free
 acid content (FA) of the solution is held at a value FA = (0.5 to 1.0) +
 K, where K = (0.002 to 0.012) x Fel. (FA is the number of millilitres of
 0.1N sodium hydroxide solution used in titrating 10 ml of bath sample
 diluted with 100 ml desalinated water to change from dimethyl yellow to
 weak yellow colouration).
 CC 57 FINISHING
 CT Aluminum: Coating; Steels: Coating; Phosphating (coating); Immersion
 coating; Spray coating
 ET Al; Zn; K; N

L65 ANSWER 62 OF 89 METADEX COPYRIGHT 2002 CSA
 AN 1989(1):58-87 METADEX

TI Process for Obtaining Phosphate Coatings.
AU Hauffe, D.; Kuhna, R.; Muller, G.; Rausch, W.; Schumichen, H.
CS Metallgesellschaft
PI EP 264151 20 Apr. 1988
AD 3 Oct. 1987
DT Patent
LA German
AB In a process for the production of phosphate coatings on composite materials of steel and Zn coated Steel by alkaline cleaning, rinsing in an aqueous rinse bath and Zn phosphating, to avoid the formation of non-uniform coatings and flecks, a rinse bath is used which contains at least 0.1 g/l alkali silicate and at least 0.05 g/l alkali nitrite. Preferably the total amount of these constituents should not exceed 5 g/l. If it is intended to activate the composite parts before phosphating with titanium-phosphate-containing activating bath, it is necessary to add to the activating bath tetra-alkali phosphate in an amount of at least 1 g/l, preferably a maximum, of 4 g/l. The process is of particular advantage in the pre-treatment of composite components of steel and Zn coated steel (e.g. car body panels) painting, especially electropainting.

CC 58 METALLIC COATING
CT Galvanized steels; Coating; Phosphating (coating); Alkaline cleaning; Rinsing; Surface pretreatments; Surface activation; pH
ET Zn

L65 ANSWER 63 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1988:188521 HCAPLUS
DN 108:188521
TI Pigmented anticorrosion coating for metals
IN Braun, Stanislav; Nedrost, Miroslav; Svoboda, Miroslav; Palffy, Alexander; Knapek, Bernard; Donat, Feodor; Halamova, Kvetoslava; Jirakova, Dagmar; Antl, Ladislav
PA Czech.
SO Czech., 5 pp.
CODEN: CZXXA9
DT Patent
LA Czech
IC ICM C09D005-08
CC 42-6 (Coatings, Inks, and Related Products)
Section cross-reference(s): 55

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CS 243402	B1	19860612	CS 1984-7219	19840925
AB	Primers for corrosion protection of metals (steel, galvanized Fe, Al, Al alloys) in atm. or water consist of multiphase anticorrosion inorg. pigments based on Fe ₂ O ₃ or TiO ₂ contg. 5-55% Zn ₃ (PO ₄) ₂ (I) and .1toreq.3% FePO ₄ or Ti ₃ (PO ₄) ₄ 3-82, alkyd resin binders 8-66, solvents 0.5-60, additives 0.01-22, and, optionally, fillers 1-45 parts. A typical primer for steel comprised red Fe pigment contg. 30% I and 0.18 g FePO ₄ 5, microground talc 23, mixt. of C black and mica 11, mixt. of medium-oil-length alkyd and chloro rubber 24, xylene 23, 10% Pb naphthenate 2, and 2% Co naphthenate 2 parts.				
ST	anticorrosion primer pigment steel; iron phosphate pigment coating; titanium phosphate pigment coating; zinc phosphate pigment coating; alloy anticorrosive primer; aluminum anticorrosive primer; oxide iron titanium pigment				
IT	Galvanized iron and steel RL: USES (Uses) (anticorrosive primers for, pigments for)				
IT	Pigments				

(iron and **titanium oxide**-based, for primers)

IT Corrosion inhibitors
 (pigments contg. zinc and iron or titanium phosphates, for primers)

IT Coating materials
 (anticorrosive, primers, contg. iron or **titanium oxide**)

IT Aluminum alloy, base
 RL: USES (Uses)
 (anticorrosive primers for, pigments for)

IT 7429-90-5, uses and miscellaneous
 RL: USES (Uses)
 (anticorrosive primers for, pigments for)

IT 7439-89-6
 RL: USES (Uses)
 (coating materials, anticorrosive, primers, contg. iron or **titanium oxide**)

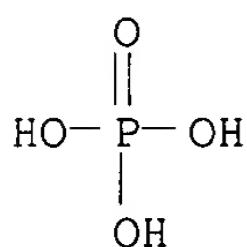
IT 7779-90-0 10045-86-0, Iron phosphate 15578-51-5
 RL: USES (Uses)
 (pigment contg., anticorrosive, for primers)

IT 1309-37-1, Iron oxide, uses and miscellaneous 13463-67-7, uses and miscellaneous
 RL: USES (Uses)
 (pigment, contg. phosphate, anticorrosive, for primer)

IT 7779-90-0
 RL: USES (Uses)
 (pigment contg., anticorrosive, for primers)

RN 7779-90-0 HCAPLUS

CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)

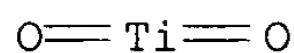


3/2 Zn

IT 13463-67-7, uses and miscellaneous
 RL: USES (Uses)
 (pigment, contg. phosphate, anticorrosive, for primer)

RN 13463-67-7 HCAPLUS

CN Titanium oxide (TiO₂) (8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 64 OF 89 METADEX COPYRIGHT 2002 CSA
 AN 1988(3):57-260 METADEX
 TI Method for Activating Metal Surfaces Prior to Zinc Phosphatation.
 AU Portz, H.; Opitz, R.
 CS Gerhard Collardin
 SO Off. Gaz. ISSN: 0360-5132
 PI US 4707193 17 Nov. 1987
 AD 24 Nov. 1986

DT Patent
 LA English
 AB A method for phosphating at least one metal surface comprised of Fe, steel, Zn, galvanized Fe or steel, Al, aluminized Fe or steel, or alloys of the foregoing is claimed. The method comprises: cleaning and rinsing the surface; subjecting the work piece to an activating bath; and then phosphating using a phosphating bath comprising Zn ions and phosphate ions in aqueous solution. The improvement comprises using as the activating bath an aqueous alkaline solution with a pH of approx 8-10 consisting essentially of: at least one water soluble alkali metal borate or alkaline earth metal borate; Ti ions present in up to 100 ppm; and phosphate ions present in up to 3000 ppm; wherein the weight ratio phosphate:borate (as B2O7) is 1:> 1.
 CC 57 FINISHING
 CT Steels: Surface finishing; Zinc: Surface finishing; Aluminum: Surface finishing; Phosphating (coating)
 ET Fe; Zn; Al; Ti; B*O; B2O7; B cp; cp; O cp

L65 ANSWER 65 OF 89 METADEX COPYRIGHT 2002 CSA
 AN 1988(10):57-1128 METADEX
 TI Process for Activating Metallic Surfaces Prior to Zinc Phosphating.
 AU Portz, H.; Opitz, R.
 CS Gerhard Collardin
 PI EP 224190 3 June 1987
 AD 19 Nov. 1986
 DT Patent
 LA German
 AB The invention concerns a process for the activation of metal surfaces of Fe, steel, Zn, galvanised iron or steel, Al or aluminised iron or steel, between the steps of cleaning/rinsing and phosphating with phosphating baths containing Zn ions, using aqueous, alkaline solutions containing Ti ions and phosphate ions, that is characterised by the adjustment of the pH value of the activation solution to 8-10 and additionally including disodium tetraborate and/or other soluble alkali or alkaline earth metal borates in such amounts that the weight ratio of PO4: borate, with respect to B2O7 is 1:>1.
 CC 57 FINISHING
 CT Surface pretreatments; Surface activation; pH; Phosphating (coating); Ferrous alloys: Coating; Zinc: Coating; Aluminum: Coating
 ET Fe; Zn; Al; Ti; O*P; PO4; P cp; cp; O cp; B*O; B2O7; B cp

L65 ANSWER 66 OF 89 METADEX COPYRIGHT 2002 CSA
 AN 1987(10):35-2613 METADEX
 TI Field Corrosion Tests on Hot Dip Galvanized Steel Pipes-Assessment of Long Term Data.
 AU Kruse, C.L.; Friehe, W.; Schulze, M.; Schwenk, W.
 SO Werkst. Korros. (May 1987) 38, (5), 229-233
 ISSN: 0043-2822
 DT Journal
 LA German
 AB The degree of metal loss and its time dependence of hot dip galvanized steel pipes in flowing water were correlated with the water parameters. Good correlation was observed with CO2 concentration of the water. The higher the initial corrosion rate the higher is in many cases the decrease in corrosion rate with time. This is explained in terms of increased iron oxide content in the protective layers formed after the dissolution of a significant amount of zinc layer. Except for phosphates the other water parameters (chlorides, sulphates, nitrates and TOC) do not exhibit any influence. The favourable influence of the iron oxide rich protective layers on the corrosion rate may be lost in waters very rich in carbon

CC dioxide. 4 ref.-AA
 CC 35 CORROSION
 CT Hot dip galvanizing; Galvanized steels: Corrosion; Pipe: Corrosion;
 Corrosion tests; Corrosion rate; Water: Environment
 ET C*O; CO₂; C cp; cp; O cp

L65 ANSWER 67 OF 89 HCAPLUS COPYRIGHT 2002 ACS
 AN 1987:556503 HCAPLUS
 DN 107:156503
 TI Primer **compositions** for metals
 IN Takimoto, Masateru; Boda, Tamotsu; Nakano, Shinji; Yoshida, Juichi
 PA Nippon Paint Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 10 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C09D003-72
 ICS C09D003-58
 CC 42-9 (Coatings, Inks, and Related Products)
 Section cross-reference(s): 55

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61276861	A2	19861206	JP 1985-119205	19850531
	JP 04075941	B4	19921202		

AB Corrosion-resistant **compn.** contain thermosetting resins (A) obtained from (B) an OH-contg. epoxy resin treated with a dicarboxylic acid and primary hydroxyalkyl-contg. secondary amines and then C5-11 lactones and (C) a blocked polyisocyanate at NCO/active H (in blocking agent) 5:(1-4) and primary OH group (in B)/free NCO (in C) (1-10):1, **phenolic** resol (D) at (A/D 95/5-70/30), 25-50% (based on solids) pigments contg. 50-100% Sr chromates and 0-50% Ca chromates, and 5-15% (based on solids) pH-adjusting pigments. Thus, a soln. of 475 parts Epo Toho YD-014 (epoxy equiv. 950) in 95 parts xylene and 119 parts Cellusolve acetate was treated with 39.2 parts azelaic acid and 8.3 parts diethanolamine at 145.degree. for 6 h, cooled to 100.degree., treated with 105 parts Placcel M and 0.3 part SnCl₂, and thinned with 209 parts xylene and 130 parts MEK to give component B. Cellusolve acetate 335, isophorone diisocyanate 222, and .epsilon.-caprolactam 113 parts were heated at 80.degree. to give component C (NCO equiv. 680). The component B was heated with 55.9 parts component C and 118 parts Cellusolve acetate at 100.degree. for 3 h and dild. with 102 parts iso-PrOH to give a thermosetting resin soln., 28 parts (solids) of which was mixed with BKS 316 (**phenolic** resol) 7 (solids), Sr chromate 40, Sicor ZNP/M 10, TiO₂ 15 parts, and cyclohexane. A Zn₃(PO₄)₂-treated **galvanized** steel plate was coated with the mixt., baked at 220.degree. for 60 s to form a 5-.mu. primer, topped with Superlac DIFOX 97 (polyester), and baked to give a coated plate with excellent adhesion and resistance to boiling **water** and salt **water** spray.

ST anticorrosive primer modified epoxy resin; metal primer lactone modified epoxy; caprolactone modified epoxy resin primer; isocyanate modified epoxy resin prime; urethane modifier epoxy resin primer; thermosetting epoxy resin primer

IT Pigments
 (inorg. compds., modified epoxy resin primers contg., anticorrosive, for metals)

IT Inorganic compounds
 RL: USES (Uses)
 (pigments, modified epoxy resin primers contg., anticorrosive, for metals)

IT **Galvanized iron and steel**
 RL: USES (Uses)
 (primers for, anticorrosive, modified epoxy resins as)

IT **Coating materials**
 (anticorrosive, primers, modified epoxy resins, for metals)

IT **Fatty acids, polymers**
 RL: USES (Uses)
 (dimers, epoxy resins modified by, for anticorrosive primers, for metals)

IT 101484-09-7, BKS 316
 RL: USES (Uses)
 (modified epoxy resins blends, primers, anticorrosive, for metals)

IT 13939-25-8, Aluminum dihydrogen **tripolyphosphate**
 RL: USES (Uses)
 (pigments, K-White 82, modified epoxy resin primers contg.,
 anticorrosive, for metals)

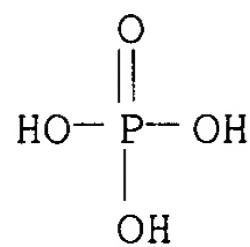
IT **7779-90-0, Zinc phosphate**
 RL: USES (Uses)
 (pigments, Sicor ZNP/M, modified epoxy resin primers contg.,
 anticorrosive, for metals)

IT 471-34-1, Calcium carbonate, uses and miscellaneous 7789-06-2, Strontium chromate 13765-19-0, Calcium chromate
 RL: USES (Uses)
 (pigments, modified epoxy resin primers contg., anticorrosive, for metals)

IT 110586-17-9
 RL: USES (Uses)
 (primers, anticorrosive, for metals)

IT **7779-90-0, Zinc phosphate**
 RL: USES (Uses)
 (pigments, Sicor ZNP/M, modified epoxy resin primers contg.,
 anticorrosive, for metals)

RN 7779-90-0 HCPLUS
 CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 68 OF 89 HCPLUS COPYRIGHT 2002 ACS
 AN 1987:86320 HCPLUS
 DN 106:86320
 TI Modified epoxy resin binders for coatings
 IN Sato, Haruhiko; Umemoto, Hirotoshi
 PA Nippon Paint Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C09D003-72
 CC 42-9 (Coatings, Inks, and Related Products)

Section cross-reference(s): 55

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61204279	A2	19860910	JP 1985-45275	19850307
AB	Binders useful in metal primers contain thermosetting resins obtained from (A) an HO group-contg. epoxy resin treated with a dicarboxylic acid and then C5-11 .omega.-lactones and (B) a blocked polyisocyanate at NCO/active H (in blocking agent) 5:(1-4) and primary OH group (in A)/free NCO(in B) (1-10):1. Thus, a soln. from Epo Toho YD-017 (epoxy equiv. 1960) 784, xylene 2468, and Cellosolve acetate 196 parts was treated with 25.1 parts azelaic acid and 13.3 parts diethanolamine at 140.degree. for 4 h, cooled to 100.degree., treated with 171.2 parts .epsilon.-caprolactone and 0.5 part SnCl ₂ , heated at 140.degree. to >92% conversion, and thinned with 314 parts xylene and 245 parts MEK to give a component A. Cellosolve acetate 375, hexamethylene diisocyanate 224, and .epsilon.-caprolactam 151 parts were heated at 100.degree. for 3 h to give a component B. The component A was mixed with 75 parts component B and 263 parts xylene, heated at 100.degree. for 3 h and dild. with 244 parts MEK to give a thermosetting resin soln., which (250 parts) was mixed with TiO ₂ 30, Sr chromate 25, and Cymel 303 10 parts, coated 8 .mu. thick on a Zn phosphate-treated galvanized iron plate, baked at 210.degree. for 45 s, topped 15-.mu. thick with a coil coating compn., and baked at 210.degree. for 60 s to give a coated specimen with excellent adhesion and resistance to chems., boiling water, and salt water spray.				
ST	anticorrosive primer modified epoxy resin; dicarboxylic acid modified epoxy primer; caprolactone modified epoxy primer; isocyanate modified epoxy primer; azelaic modified epoxy primer; galvanized iron primer modified epoxy				
IT	Fatty acids, polymers RL: USES (Uses) (dimers, epoxy resins modified by, for anticorrosive primers, for metals)				
IT	Galvanized iron and steel RL: USES (Uses) (primers for, anticorrosive, modified epoxy resins as)				
IT	Coating materials (anticorrosive, primers, modified epoxy resins, for metals)				
IT	106926-80-1P 106926-81-2P, Azelaic acid-.epsilon.-caprolactam-.epsilon.-caprolactone-Epo Toho Yd 014-formaldehyde-isophorone diisocyanate-melamine copolymer 106926-82-3P, Azelaic acid-.epsilon.-caprolactam-Epo Toho YD 011-formaldehyde-hexamethylene diisocyanate-melamine-Placcel G 402 copolymer 106926-83-4P, Azelaic acid-.epsilon.-caprolactam-.epsilon.-caprolactone-Epo Toho YD 017-hexamethylene diisocyanate-urea copolymer 106926-84-5P, Azelaic acid-.epsilon.-caprolactam-.epsilon.-caprolactone-Epo Toho YD 017-hexamethylene diisocyanate-isophorone diisocyanate copolymer 106926-87-8P 106946-54-7P, Azelaic acid-.epsilon.-caprolactam-.epsilon.-caprolactone-Epo Toho YD 017-hexamethylene diisocyanate copolymer RL: PREP (Preparation) (manuf. of, for anticorrosive primers, for metals)				
IT	502-44-3D, polymer with epoxy resins and dimer acids and blocked polyisocyanates 70726-45-3D, Epo Toho YD 014, polymer with dimer acids and caprolactone and blocked polyisocyanates RL: USES (Uses) (primers, anticorrosive, melamine resin-crosslinked, for metals)				

DN 105:154801
 TI Anticorrosive coating of **galvanized** steel
 IN Sagane, Masahiko; Kume, Masafumi
 PA Kansai Paint Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM B05D007-14
 ICS B05D001-36
 CC 42-9 (Coatings, Inks, and Related Products)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61136466	A2	19860624	JP 1984-257055	19841205

AB **Galvanized** steel was coated with a **water**-thinned compn. (forming a dry film with **water** absorption 0.3-20% at 50.degree.), topped with a compn. contg. anticorrosion pigment (giving aq. ext. with elec. cond. >100 .mu..mu..OMEGA./cm), and if necessary coated with another compn. to give anticorrosive coatings. Thus, a Zn phosphate -treated **galvanized** steel panel was electrophoretically coated with a thermosetting polybutadiene-based anionic compn., baked at 170.degree. for 30 min (to form 20 .mu. coating with **water** absorption 2.8%), coated with a compn. from Araldite 6097 60, Beckamine P-138 34, TiO₂ 40, BaSO₄ 20, and org. solvent 180 and 2 phr Zn chromate, baked at 160.degree. for 30 min (coating thickness 30 .mu.), coated with a white amino-acrylic paint, and baked at 140.degree. for 30 min. to give a coating with excellent salt **water** spray resistance.
 ST polybutadiene anticorrosive coating **galvanized** steel; epoxy anticorrosive coating **galvanized** steel; zinc chromate anticorrosive coating
 IT **Galvanized** iron and steel
 RL: USES (Uses)
 (anticorrosive coatings for, epoxy and alkyd resins contg. corrosion inhibitors for)
 IT Coating materials
 (anticorrosive, epoxy resins and alkyd resins, cong. corrosion inhibitors, for **galvanized** steel)
 IT 25068-38-6
 RL: TEM (Technical or engineered material use); USES (Uses)
 (coatings, anticorrosive, contg. urea resin and corrosion inhibitors, for **galvanized** steel)
 IT 9003-17-2D, anionic derivs.
 RL: TEM (Technical or engineered material use); USES (Uses)
 (coatings, electrophoretic, for **galvanized** steel)
 IT 7789-06-2 10294-40-3 13530-65-9 13765-19-0
 RL: USES (Uses)
 (epoxy and alkyd coatings contg., anticorrosive, for **galvanized** steel)
 IT 9011-05-6
 RL: USES (Uses)
 (epoxy coatings contg. corrosion inhibitors and, anticorrosive, for **galvanized** steel)

L65 ANSWER 70 OF 89 METADEX COPYRIGHT 2002 CSA
 AN 1987(10):58-1096 METADEX
 TI Behavior of the Water of Crystallization of Zinc Phosphate and Its Relationship to Wet Adhesion of Paint on Electro-Galvanized Steel.

- AU Yoshioka, K.; Yoshida, Y.; Watanabe, T.
SO Tetsu-to-Hagane (J. Iron Steel Inst. Jpn.) (June 1986) 72, (8), 1125-1132
ISSN: 0021-1575
DT Journal
LA Japanese
AB The behavior of the water of crystallization of zinc phosphate and its relationship to wet adhesion of paint on electro-galvanized steel has been investigated. A conversion coating of $Zn_3(PO_4)_2 \cdot 4H_2O$ under the paint film was dehydrated to yield $Zn_3(PO_4)_2 \cdot 2H_2O$ by baking the film for every amount of Ni and Mn in the coating. In the case of low contents of Ni and Mn in the coating, $Zn_3(PO_4)_2 \cdot 2H_2O$ became rehydrated $Zn_3(PO_4)_2 \cdot 4H_2O$ by immersion in water in a wet adhesion test. However in the case of high contents of Ni and Mn, $Zn_3(PO_4)_2 \cdot 2H_2O$ was not rehydrated. The rehydration rate decreased with increasing contents of Ni and Mn in the coating. Therefore, it was found that the coating including high contents of Ni and Mn showed a very good wet adhesion. Moreover, the crystal of zinc phosphate coating including high contents of Ni and Mn was proved to be fine, dense and almost amorphous. 9 ref.-AA
CC 58 METALLIC COATING
CT Galvanized steels: Coating; Phosphating (coating); Painting; Adhesion: Alloying effects
ET O*P*Zn; $Zn_3(PO_4)_2$; Zn cp; cp; P cp; O cp; H*O; H_2O ; $4H_2O$; is; H is; 4H; H cp; Ni; Mn
- L65 ANSWER 71 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1987(6):57-531 METADEX
TI Paint Adhesion to TFS and Galvanized Steel Sheet.
AU Yoneno, M.
SO J. Met. Finish. Soc. Jpn. (1986) 37, (9), 497-502
ISSN: 0026-0614
DT Journal
LA Japanese
AB A review of adhesion and its test for TFS (Sn free steel) and galvanized steel is made. The existing adhesion tests according to the JIS K 5400 standard are: chess-board area test, bending test, shear separating test, and vertical tensile test. The adhesion decrease of can steel film was due to Sn oxidation, decomposition of penetrated oil, and water removing reaction of surface layer. For Zn plated steel, phosphated film was effective in improving adhesion since the surface area was greatly increased through phosphating. The inclusion of moisture at the interface of steel and coating film would result in poor adhesion. 59 ref.-X.S.
CC 57 FINISHING
CT Galvanized steels: Coating; Tin plate: Coating; Cans: Coating; Painting; Plastic coating; Phosphating (coating); Adhesive strength
ET Sn; K; Zn
- L65 ANSWER 72 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1986(5):57-384 METADEX
TI Chromate-Free Post-Treatments.
AU Lindert, A.; Maurer, J.I.; Kent, G.
SO Prod. Finish. (Cincinnati) (Jan, 1986) 50, (4), 48-53
ISSN: 0032-9940
DT Journal
LA English
AB As a pretreatment to painting steel, a Zn or iron phosphate conversion coating is applied followed by a rinse. Better corrosion resistance is obtained if a post treatment is used. The post treatment has been a chromate based treatment. To prevent chromate water pollution, research was undertaken to develop a chromate-free treatment that would be applicable to both the Fe and Zn phosphates. The result was a compound

based on a polyhydroxystyrene derivative. Results of salt spray tests on cold rolled and on galvanized steels are compared for chromate-free and chromic/chromate post treatments on zinc phosphate and a paint system used in the appliance industry for detergent resistance. Scab test results are compared for the steels with automotive body paint.-H.B.C.

CC 57 FINISHING
 CT Carbon steels: Coating; Galvanized steels: Coating; Phosphating (coating); Chromating; Painting
 ET Zn; Fe

L65 ANSWER 73 OF 89 HCAPLUS COPYRIGHT 2002 ACS
 AN 1985:506417 HCAPLUS

DN 103:106417

TI Urethane-modified polyester **compositions** for coatings

PA Dainippon Ink and Chemicals, Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C09D003-72

CC 42-8 (Coatings, Inks, and Related Products)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 60099172	A2	19850603	JP 1983-205932	19831104
	JP 04025316	B4	19920430		

AB The title compns. having good workability and forming coatings with excellent hardness and soiling resistance contain partially crosslinked urethane-modified polyesters and amino resins and/or blocked polyisocyanates. Thus, isophthalic acid 420, neopentyl glycol 153, trimethylolpropane 63, 1,6-hexanediol 250, and Bu₂SnO 0.5 part were heated at 230.degree. for 2 h, and the reaction was continued in xylene to acid value 5. The reaction mixt. was allowed to cool, dild. with 500 parts Solvesso 100 and 500 parts cyclohexanone, heated to 80.degree., treated over 1 h with 200 parts hexamethylene diisocyanate, and kept at the same temp. for 4 h to obtain a modified polyester with Gardener viscosity T-U, acid value 0.5, OH value 60, and no.-av. mol.wt. 5200. A mixt. of this modified polyester 100, Super Beckamine L-117-60 4.78 and Solvesso 100 0.9 part was stirred at 80.degree. for 4 h to obtain a partially crosslinked resin soln. with viscosity T-U2, no.-av. mol.wt. 5400, and storability >3 mo at 25.degree.. This partially crosslinked resin soln. II 100, TiO₂ 55.5, Super Beckamine L-105-60 9.3, 10% p-MeC₆H₄SO₃H soln. (in butyl Cellosolve) 0.1, and Polyflo S flow-control agent 0.04 part were ball-milled, and baked on Zn phosphate-treated **galvanized** steel at 220.degree. for 1 min to obtain 15-20 .mu.m coating with 60.degree. gloss 90%, pencil hardness 2H, and excellent flexibility, surface smoothness, and resistance to soiling, boiling water, and chems.

ST urethane modified polyester coating; soiling resistant polyester coating; polyisophthalate polyurethane coating; neopentyl glycol polyurethane coating; trimethylolpropane polyurethane coating; hexanediol polyurethane coating; hexanedioisocyanate polyurethane coating; aminoplast crosslinker polyurethane coating; polyisocyanate crosslinker polyurethane coating

IT Crosslinking agents
 (melamine resins and polyisocyanates, for urethane-modified polyester coatings)

IT Coating materials
 (urethane-modified polyester, soiling-resistant)

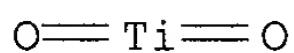
IT 91261-21-1

RL: MOA (Modifier or additive use); USES (Uses)

(crosslinking agents, for urethane-modified polyester coatings)
 IT 68900-92-5P 98160-67-9P 98160-68-0P 98160-69-1P
 RL: PREP (Preparation)
 (manuf. of, for soiling-resistant coatings)

L65 ANSWER 74 OF 89 HCAPLUS COPYRIGHT 2002 ACS
 AN 1985:457504 HCAPLUS
 DN 103:57504
 TI Coated steel sheets
 PA Sumitomo Metal Industries, Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 5 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C10M103-00
 ICA C09D005-00
 ICI C10N040-24, C10N050-02, C10N050-08
 CC 55-6 (Ferrous Metals and Alloys)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 60053597	A2	19850327	JP 1983-161259	19830901
AB	Steel sheets are coated with lubricants contg. 0.01-5.0% BN to increase workability, e.g., pressing. Thus, a galvanized steel sheet was treated with Zn phosphate, water-washed , chromate-sealed, dried, coated (10 .mu. thick) with a mixt. of polyester 40, hexamethylolmelamine [531-18-0] 10, TiO₂ 30, and SrCrO ₄ 20 parts (methylisobutyl ketone as solvent) contg. 0.1% BN to increase press workability.				
ST	steel sheet coating boron nitride; boron nitride coating steel sheet; galvanized steel sheet workability				
IT	Galvanized iron and steel				
	RL: USES (Uses) (coating of, with boron nitride-contg. compn. , for improved press workability)				
IT	Coating process (of galvanized steel sheets, for improved press workability)				
IT	531-18-0 7789-06-2 10043-11-5, uses and miscellaneous 13463-67-7 , uses and miscellaneous				
	RL: USES (Uses) (coating with compn. contg., of galvanized steel sheets for improved press workability)				
IT	13463-67-7 , uses and miscellaneous				
	RL: USES (Uses) (coating with compn. contg., of galvanized steel sheets for improved press workability)				
RN	13463-67-7 HCAPLUS				
CN	Titanium oxide (TiO ₂) (8CI, 9CI) (CA INDEX NAME)				



L65 ANSWER 75 OF 89 METADEX COPYRIGHT 2002 CSA
 AN 1986(3):57-253 METADEX
 TI Paint Adhesion of Zinc and Zinc Alloy Plated Steel Sheets in Automotive Body.
 AU Wakano, S.; Sakoda, A.; Nishihara, M.
 SO Sumitomo Met. (Aug. 1985) 37, (3), 325-332

ISSN: 0371-411X
DT Journal
LA Japanese
AB Paint adhesion of Zn and Zn alloy plated steel sheets with cathodic electropaint film as a primer paint has been investigated and a mechanism of paint adhesion loss is proposed. The addition of fluoride instead of chlorate and heavy metal ions to conventional immersion zinc phosphate solution greatly improves paint adhesion after the immersion test in warm deionized water. Phosphate crystals deposited from new types of zinc phosphate solution consist of hopeite as do those from conventional type solutions, but with a finer morphology and better alkali resistance. The fine morphology causes a smaller space for permeated water and less porosity. Also there may be a larger contract area between paint film and phosphate crystal as well as a stronger binding force between phosphate crystal and substrate. When comparing this process with a conventional process, the space for permeated water plays the most important role in improving paint adhesion. Furthermore, the results of SEM and electrochemical evaluation of phosphate crystal suggest the under film condition in the water immersion test to be mildly alkaline (p H 7-9) and to contain poorly dissolved oxygen. 14 ref.-AA
CC 57 FINISHING
CT Painting; Adhesion; Galvanized steels: Coating; Automotive bodies: Coating; Electropainting
ET Zn; H

L65 ANSWER 76 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1986(1):57-54 METADEX
TI Phosphate Conversion Coatings.
AU Kuehner, M.A.
SO Met. Finish. (Aug. 1985) 83, (8), 15-18
ISSN: 0026-0576
DT Journal
LA English
AB Due to the unique requirements of several "new" organic coatings (powder, water-borne, high solids, etc.), special attention must be paid to metal pre-treatment. The pre-paint phosphating of various metals (steel, galvanized and, to a smaller extent, Al), is discussed with emphasis on the specific requirements of new compliance finishes. The choice of pretreatment process is materially affected by the organic finish, the substrate, the end product, and the exposure conditions. Major categories here include: conversion coatings, iron phosphates, zinc phosphates, specific requirements of various compliance finishes (powder coating, water-borne paints, high-solids paints). An overview of several new products and processes is provided.-G.L.P.
CC 57 FINISHING
CT Carbon steels: Coating; Galvanized steels: Coating; Phosphating (coating); Powder coating; Painting; Conversion coating (process)
ET Al

L65 ANSWER 77 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1986(2):57-118 METADEX
TI New Method of Passivation of Zinc-Plated Sheets.
AU Jasovsky, F.Z.; Susinka, P.; Janok, J.; Banik, J.
SO Koroze Ochr. Mater. (1985) 29, (1), 10-12
ISSN: 0023-4095
DT Journal
LA Czech
AB In East Slovakian steelworks (VSZ Kosice) several laboratory tests of different passivation methods were carried out. The most appropriate process appeared to be phosphate-chromate passivation on the basis of

Synpasiv Zn 391, chromate conversion type coating. The coating is uniform and colorless with the Cr content up to 40 mg/m⁻². Analysis confirmed that besides Cr, the layer contains also phosphorus which is approx 20% of the mass of Cr. The deposited chromium hydroxide is equal to the concentration of chromium oxide. The results of corrosion tests in water vapor and in industrial atmosphere showed that the coating produced by the new method gives better protection than coatings produced by using the CrO₃ solution even though they contain half as many ions of chrome. The Cr content is not a reliable indicator of quality of coatings. The higher protective effectiveness can be explained by higher uniformity and by formation of zinc phosphate.-V.T.B.

CC 57 FINISHING
CT Galvanized steels; Coating; Passivation; Phosphating (coating); Corrosion resistance; Protective coatings: Corrosion
ET Zn; Cr; Cr⁺³; CrO₃; Cr cp; cp; O cp

L65 ANSWER 78 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1984(12):57-910 METADEX
TI Treatment of Metal Prior to Coating With Zinc Phosphate.
AU Hacias, K.J.
CS Pyrene Chemical Services Ltd
PI GB 2136454 A 19 Sept. 1984
AD 29 Feb. 1984
DT Patent
LA English
AB A phosphate coating is formed on a galvanised or other metal surface by contacting the surface with an aqueous activating composition containing tetrasodium pyrophosphate and a reaction product of a titanium compound and a sodium phosphate and having a pH of 7 to 10 and then contacting the surface with an acidic phosphating solution containing phosphate and zinc. The resultant coating is a particularly good base for cathodically applied paint.
CC 57 FINISHING
CT Surface pretreatments; Phosphating (coating); Galvanized steels: Coating; pH
ET H

L65 ANSWER 79 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1985(5):35-717 METADEX
TI A Contribution to the Study of the Corrosion Resistance of Precoated Steel Sheet.
AU Cottray, R.; Marguier, G.; Pichant, P.
SO Mater. Tech. (Paris) (Mar.-Apr. 1984) 72, (3-4), 111-115
ISSN: 0032-6895
DT Journal
LA French
AB The corrosion resistance of steel sheet coated by methods used in the car industry was studied and the corrosion resistance conferred on the steel by the coatings was compared. Three types of accelerated corrosion test were used on a pressed-steel car component: saline-fog test, exposure at a marine site and a corrosion cycle of a saline environment followed by high humidity and drying. The latter test was considered to be the best test for precoated steel. Three types of precoated steel were used: (i) 'Zincrometal' which is a zinc-rich binary coating; (ii) hot-galvanized steel coated on one side with 10 µm and on the other with 2 µm of Zn; (iii) electrolytically deposited Zn on one side of the steel. Three types of surface treatment were applied to the precoated steel followed by electrophoretic painting: (i) Zn phosphate and anaphoretic, (ii) Fe phosphate and cataphoretic, (iii) Zn phosphate and cataphoretic. The latter treatment gave significantly better corrosion resistance. The

corrosion at junctions between non-coated steel was minimised when one of the parts of the junction was precoated.-G.C.

CC 35 CORROSION
CT Precoated strip: Corrosion; Galvanized steels: Corrosion; Corrosion resistance; Protective coatings; Electrophoretic coating; Zincrometal; Salt water: Environment
ET Zn; Fe

L65 ANSWER 80 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1984(4):35-802 METADEX
TI Effect of Corrosion Behavior of Galvanized Steel Pipe in Warm Water.
AU Kruse, C.-L.
SO Editions CEBODOC. 2, rue Armand Stevart, B-4000, Liege, Belgium. 1983.
67-90. Accession Number: 84(4):72-259
Conference: Industrial Water Treatment and Conditioning, Liege, Belgium,
25-27 May 1983
DT Conference
LA German
AB Pipe specimens made of commercial-grade galvanized steel and Zn have been tested in comparison to pipe specimens having modified Zn coatings. The specimens were corroded in 11 test lines with warm water at approx 60 deg C and cold water with continuous and intermittent flow. The localized corrosion tendency is not determined by the amount of potential ennoblement, but rather by the inhibition of the cathode reaction on the surface layer formed, which can be read off the cathodic current density vs. potential curve. The tested materials with modified coatings showed poorer corrosion behavior in warm water than commercial Zn coatings. The phosphates used for the investigation induce an inhibition of the cathode reaction in Zn. A treatment of the water according to the Guldager process insures a strong inhibition of the cathode reaction both with Zn and especially with Zn-Fe alloy phases and induces an important improvement of the corrosion behavior of galvanized steel in warm water.-AA

CC 35 CORROSION
CT Galvanized steels: Corrosion; Pipe: Corrosion; Pitting (corrosion); Inhibition; Corrosion resistance: Composition effects; Corrosion potential
ET Zn; Fe*Zn; Fe sy 2; sy 2; Zn sy 2; Zn-Fe

L65 ANSWER 81 OF 89 COMPENDEX COPYRIGHT 2002 EI
AN 1985(8):110523 COMPENDEX
TI ZINC PHOSPHATING OF GALVANIZED STEEL.
AU Tupper, G.Lowell (Coral Chemical Co, Waukegan, IL, USA)
MT Finishing '83.
MO SME, Dearborn, MI, USA
ML Cincinnati, OH, USA
MD 11 Oct 1983-13 Oct 1983
SO SME Technical Paper (Series) FC Publ by SME, Dearborn, MI, USA FC83-641,
11p
CODEN: TPFCD A ISSN: 0161-1844
PY 1983
MN 06007
DT Conference Article
LA English
AB Methods of producing **galvanized** steel and the various grades and surface finishes commercially available are presented, with comments on the effects of passivation. The pretreatment process section discusses cleaning and conditioning, rinsing, deposition of the coating, post rinsing and drying. Comments are included on pollution aspects in addition to a discussion of test methods used to evaluate quality and potential durability. 8 refs.
CC 545 Iron & Steel; 539 Metals Corrosion & Protection; 453 Water Pollution

CT *GALVANIZED METAL:Protective Coatings; WATER
POLLUTION:Control

ST PASSIVATION; PRETREATMENT; RINSING; ZINC PHOSPHATING

L65 ANSWER 82 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1983:162549 HCAPLUS

DN 98:162549

TI Water-resistant polyester coatings

PA Mitsui Toatsu Chemicals, Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC C09D003-64; C08G063-12; C08G063-20

CC 42-8 (Coatings, Inks, and Related Products)

Section cross-reference(s): 55

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 57172963	A2	19821025	JP 1981-57993	19810417
AB	The title coatings were formed from ethoxylated and propoxylated bisphenol A-based polyesters. For example, 400 parts polyester [85412-34-6] (no.-av. mol. wt. 20,000) from di-Me terephthalate 184, isophthalic acid 166, ethylene glycol 24.8, neopentyl glycol 104, and propoxylated bisphenol A (OH value 310) 217 parts and mixed with a 360:180:60 mixt. of Solvesso 150, cyclohexanone, and Cellosolve acetate to give a 40%-solids soln. (I). A compn. from I 212.5, Cymel 303 15.0, p-MeC ₆ H ₄ SO ₃ H 0.3, and TiO ₂ 100 parts was baked on Zn phosphate-treated galvanized steel at 260.degree. for 1 min to give a 15-.mu. coating with excellent water resistance.				
ST	bisphenol polyester coating water resistance; alkoxylated bisphenol polyester coating				
IT	Coating materials (water-resistant, alkoxylated bisphenol A-based polyesters)				
IT	85399-50-4	85401-92-9	85412-33-5	85412-34-6	
IT	RL: TEM (Technical or engineered material use); USES (Uses) (coatings, water-resistant)				

L65 ANSWER 83 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1983:73939 HCAPLUS

DN 98:73939

TI Cationic electrophoretic coating materials

PA Nippon Steel Corp., Japan; Nippon Paint Co., Ltd.; Mitsubishi Chemical Industries Co., Ltd.

SO Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC C25D013-20; C09D005-40; C25D003-56; C25D013-06

CC 42-7 (Coatings, Inks, and Related Products)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 57134599	A2	19820819	JP 1981-19844	19810213
	JP 60024194	B4	19850611		
AB	Urethane polymers contg. OH, tertiary amino, and blocked isocyanate groups formed pinhole-free electrophoretic coatings on Zn alloy-plated steel (as cathode). Thus, 125 g diphenylmethane 4,4'-diisocyanate (I) was treated with 100 g polypropylene glycol (mol. wt. 400) in 96 g Me ₂ CO at 60.degree., stirred 3 h at 60.degree., cooled to 40.degree., treated with				

75 g triethanolamine in 32 g Me₂CO, stirred 2 h at 50-60.degree., treated with adduct of 125 g I and 65 g 2-ethylhexanol in 81 g Me₂CO at room temp., stirred 1 h at 50.degree., thinned with 209 g EtOCH₂CH₂OH, and stripped of Me₂CO in vacuo to give a soln. of copolymer (II). A compn. of the II soln. 79, 50% lactic acid soln. 6.6, TiO₂ 43, kaolin 73, carbon black 2.4, Pb silicate 8.4, and H₂O 112 parts was milled to give pigment paste. A compn. of the II soln. 413, Bu₂Sn dilaurate 5, 50% lactic acid 34, and H₂O 473 parts was mixed with 197 parts of the above pigment paste, thinned with 1000 parts H₂O (pH 5.3), electrophoretically applied to a 12:88 Fe-Zn alloy-plated and Zn phosphate-treated steel plate (cathode) at 280 V, washed, and baked 20 min at 180.degree. to form a 20.-mu. coating having no corrosion after 672 h of salt-water -spray test (IIS Z 2371).

ST urethane polymer electrophoretic coating; galvanized steel electrophoretic coating; cationic urethane polymer coating; blocked isocyanate group polymer; hydroxy group polymer; tertiary amino group polymer; anticorrosive coating galvanized steel
 IT Coating materials
 (anticorrosive, electrophoretic, cationic urethane polymers, pinhole-free, for galvanized steel)
 IT 104-76-7D, reaction products with diphenylmethane diisocyanate-polypropylene glycol-triethanolamine copolymer 84563-03-1D, reaction products with ethylhexanol
 RL: TEM (Technical or engineered material use); USES (Uses)
 (coatings, electrophoretic, pinhole-free, anticorrosive, for galvanized steel)

L65 ANSWER 84 OF 89 HCPLUS COPYRIGHT 2002 ACS

AN 1983:93798 HCPLUS

DN 98:93798

TI Process and composition for treating phosphated metal surfaces

IN Mino, Yasutake; Murakami, Ryoichi; Saito, Koichi

PA Nippon Paint Co., Ltd., Japan

SO Eur. Pat. Appl., 30 pp.

CODEN: EPXXDW

DT Patent

LA English

IC C23F007-10; C23F007-12; C25D005-34; C25D005-36

CC 55-6 (Ferrous Metals and Alloys)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 61911	A1	19821006	EP 1982-301602	19820326
	R: AT, BE, DE, FR, GB, IT, NL, SE				
	JP 57158397	A2	19820930	JP 1981-44820	19810326
	JP 60017827	B4	19850507		
	FR 2502645	A1	19821001	FR 1982-5238	19820326
	NL 8201265	A	19821018	NL 1982-1265	19820326
	GB 2097429	A	19821103	GB 1982-8993	19820326

PRAI JP 1981-44820 19810326

AB The adhesion and corrosion resistance of cationic electrocoatings on steel or Zn phosphated surfaces were improved by surface pretreatment with aq. soln. contg. (a) .gtoreq.0.05 g/L (as ZrO₂) of Zr fluoride compd. and (b) .gtoreq.0.05 g/L of myo-inositol phosphate [83-86-3] and/or its water-sol. salt. The pH 3-7 and molar ratio of a to b from 1:1 to 50:1 were used. Phosphated Zn alloy plated on steel was treated by dipping for 4 s in (NH₄)₂ZrF₆-phytic acid soln. at 4.53:1 M ratio with

NH₃:phytic acid in soln. at 7.6:1, for adjusting pH to 5.
ST zinc steel surface treatment; **galvanized steel**
phosphating coating
IT Coating process
(electrochem., of **galvanized steel**, **phosphated** and
surface-treated, for electropainting)
IT 7440-66-6, uses and miscellaneous
RL: USES (Uses)
(coating of, for **phosphating** and painting)
IT 16919-31-6
RL: USES (Uses)
(surface treatment in soln. contg., of **galvanized** and
phosphated steel for electropainting)
IT 12597-69-2, uses and miscellaneous
RL: USES (Uses)
(surface treatment of **phosphated**, with zirconium fluoride for
electropainting)
IT 83-86-3
RL: USES (Uses)
(surface treatment soln. contg. zirconium fluoride and, for
electropainting)

L65 ANSWER 85 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1982(6):57-416 METADEX
TI Singer Makes the Paint Stick.
AU Driggs, D.
SO Prod. Finish (Feb. 1982) 46, (5), 40-43
DT Journal
LA English
AB An eight-stage metal preparation line assures paint adhesion for air
conditioning units made of galvanized and cold rolled steels in the 11/2
to 35 ton range. The metal components are cleaned in a strongly alkaline
bath at 140-150 deg F. The cleaned components then pass through a
two-stage water rinse. One of the tanks contains a conditioner to aid
subsequent coating. The fourth stage is a Zn phosphatizing line at 130 deg
F. The metal parts are rinsed in ambient-temp. water followed by a final
rinse that is treated to improved paint adhesion. After drying for 25 min
at 350 deg F, they are given a 3 min acrylic electrodeposition in a 22 000
gal tank at 150 V. Curing takes place in a gas-fired oven at 375 deg F for
approx 45 min.-T.F.F.
CC 57 FINISHING
CT Galvanized steels: Coating; Air conditioners: Coating; Painting; Adhesion
ET F; Zn

L65 ANSWER 86 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1982(10):57-778 METADEX
TI The Pretreatment of Steel and Galvanized Steel for Cathodic
Electrodeposition Paint Systems. (Pamphlet).
AU Davis, J.W.
NR 820336
SO Society of Automotive Engineers. 400 Commonwealth Dr., Warrendale, Pa.
15096. 1982. Pp 10
Conference: International Congress and Exposition, Detroit, Mich., 22-26
Feb. 1982
DT Conference; Report
LA English
AB The advent of cathodic electrodeposition in the automotive industry has
brought about substantial changes in the pretreatment of steel (1010) and
galvanized steel surfaces and the testing thereof. Cyclic scab blistering
tests, water soak tests, coating solubility, coating porosity and

ESCA/SEM/Auger surface analysis techniques have provided significant insights into the factors that optimize the performance of zinc phosphate coatings for cationic paint systems. Specifically, the crystal structure and Fe content of the phosphate coating and a Cr-based post-rinse have been shown to make a significant effect upon the subsequent corrosion resistance properties of the phosphate/metal/CED paint system. Further, ESCA/SEM surface analysis and accelerated testing have shown that the processing method substantially affects both the crystal structure and composition of the coating.-AA

- CC 57 FINISHING
 CT Carbon steels: Coating; Automotive bodies: Coating; Galvanized steels: Coating; Electropainting; Phosphating (coating); Corrosion prevention
 ALI 1010 CCA: SCL
 ET Fe; Cr
- L65 ANSWER 87 OF 89 METADEX COPYRIGHT 2002 CSA
 AN 1980(4):57-199 METADEX
 TI Surface Finishing Technologies of Window Frames.
 AU Bokor, L.
 SO Magy. Alum. (Sept. 1979) 16, (9), 261-264
 DT Journal
 LA Hungarian
 AB Surface finishing, priming and coating of AlMg3, steel and hot dip galvanized steel window frames with water dilutable paints are described. Experimental results demonstrated water dilutable paints to lend themselves well to the surface finish of the components. As for Al windows, optimum results may be arrived at by chromate treatment, although a suitable composition of zinc phosphate bath may be used. The endurance of coating depends on the strict observation of the instructions of a suitable -AA
 CC 57 FINISHING
 CT Aluminum base alloys: Surface finishing; Windows: Surface finishing; Priming (coating); Painting
 ALI AlMg3 CCA: AL
 ET Al*Mg; Al sy 2; sy 2; Mg sy 2; AlMg; Al cp; cp; Mg cp; Al
- L65 ANSWER 88 OF 89 METADEX COPYRIGHT 2002 CSA
 AN 1980(11):57-654 METADEX
 TI Immersion in a Suspension to Prepare Steel or Zinc Surfaces Before Phosphating.
 AU Moskhina, I.A.; Tarantsova, M.I.; Sorkin, G.N.; Be, R.Yu.
 SO Izv. Sib. Otd. Akad. Nauk SSSR. [Khim.] (1979) (6), 160-163
 DT Journal
 LA Russian
 AB Abstracted from Ref. Zh. (Korroz.), 1980, (4), K306. A simple and economical method was developed for the preparation of steel and Zn (galvanized steel) surfaces to provide high quality phosphate coatings in a combined phosphating process in a bath contg. H₃PO₄ 6.0, Zn(H₂PO₄)₂.2H₂O 30.0, Zn(NO₃)₂.6H₂O 60.0, NaF 3.0, and NaNO₂ 1.0 g/l. Best results were given by immersion in an aqueous suspension of hopeite (an insoluble Zn phosphate) or sand of 4-8 μ m particle size. The method can be automated.-A.D.M.
 CC 57 FINISHING
 CT Steels: Cleaning; Galvanized steels: Cleaning; Cleaning; Phosphating (coating); Submerging; Dispersions
 ET K; Zn; H*O*P; H₃PO; H cp; cp; P cp; O cp; H*O*P*Zn; Zn(H₂PO; Zn cp; H*O; H₂O; N*O*Zn; Zn(NO; N cp; F*Na; NaF; Na cp; F cp; N*Na*O; NaNO
- L65 ANSWER 89 OF 89 METADEX COPYRIGHT 2002 CSA
 AN 1979(3):57-136 METADEX